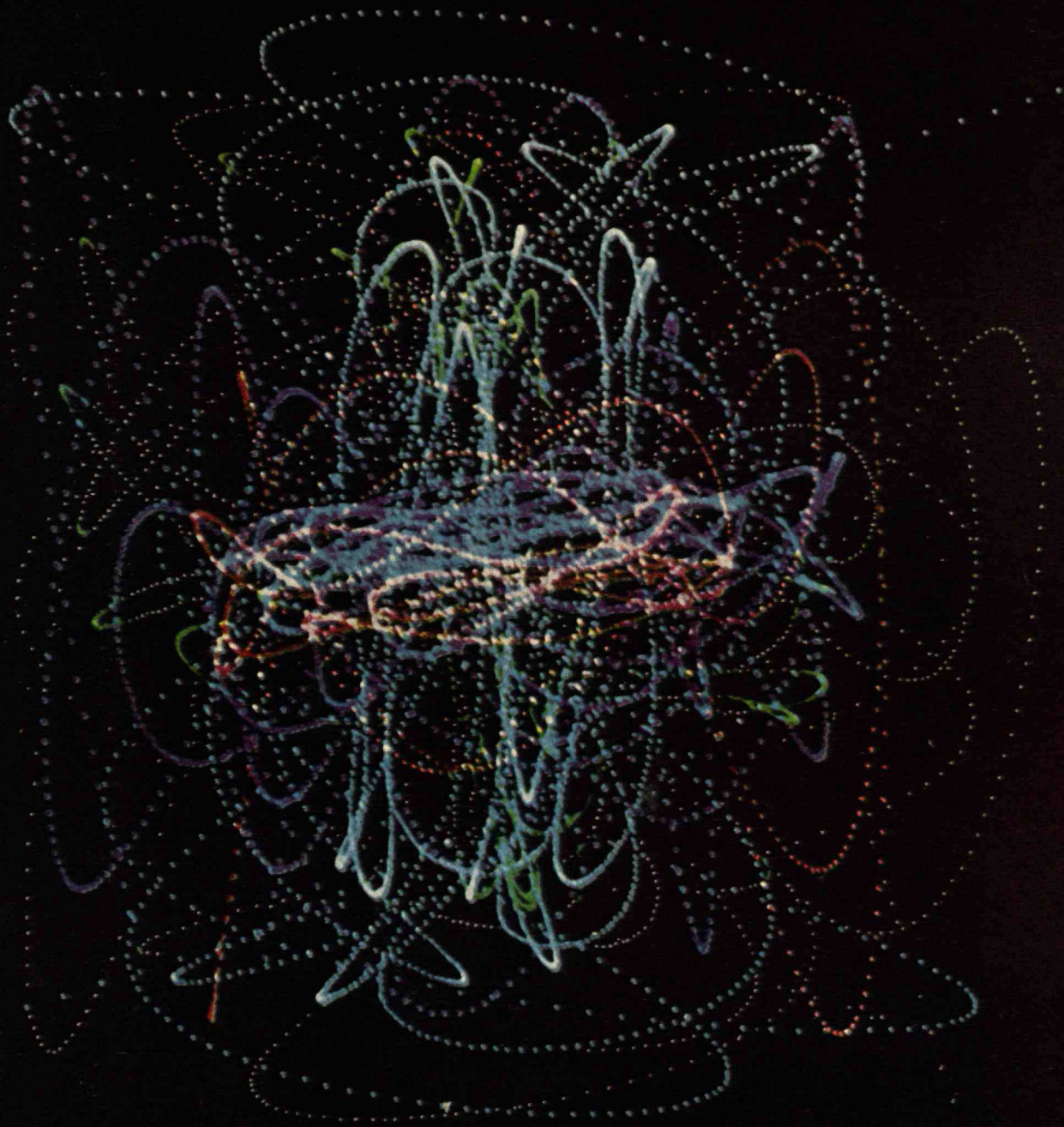


Technology Review

Edited at the Massachusetts Institute of Technology



November, 1965

Outlook on Man's Future

technology review

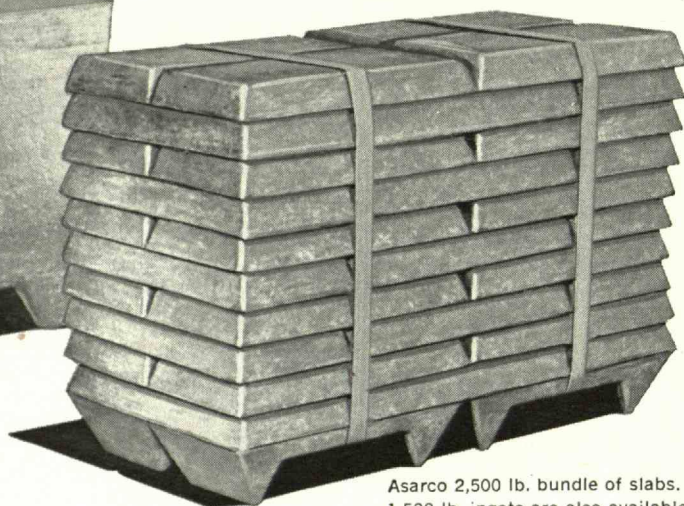
Published by MIT

This PDF is for your personal, non-commercial use only.
Distribution and use of this material are governed by copyright law.
For non-personal use, or to order multiple copies please email
permissions@technologyreview.com.

Why do so many big users of zinc now buy 2400-lb. ingots?



Asarco 2,400 lb. ingot . . .
furnished in Special High Grade Zinc
and Prime Western Zinc.



Asarco 2,500 lb. bundle of slabs.
1,500 lb. ingots are also available.

It pays.

One of these giant Asarco ingots is the equivalent of forty-four 55-lb. slabs, but one man with a fork truck can handle and charge it in the same time it takes to handle one or two 55-lb slabs.

Even the design of these ingots helps. The cast-in corner legs let the lift-truck forks slide underneath quickly and easily. And the indented lifting slots permit use of an overhead crane or chain hoist for time-saving movement.

Then, too, the tops of these ingots are table-top flat: no sink spots, no place for moisture to

collect, and, consequently, no chance for metal spatter during melting.

And because there is so much less surface area with one big ingot than with 44 slabs, there will be less surface oxides, less dross upon melting.

Find out more about these 2,400-lb. zinc ingots and why it pays to use them. Write to Zinc Sales Department of Asarco at 120 Broadway, New York, New York 10005.

ASARCO

AMERICAN SMELTING AND REFINING COMPANY 

ALUMINUM ALLOYS • ANTIMONY • ARSENIC • ASBESTOS • BISMUTH • BRONZE, CONTINUOUS-CAST • CADMIUM • COPPER • GOLD • INDIUM • LEAD • NICKEL SULFATE • SELENIUM • SILVER • SULFURIC ACID & SULFUR DIOXIDE • TELLURIUM • THALLIUM • ZINC • ZINC DUST

DASH



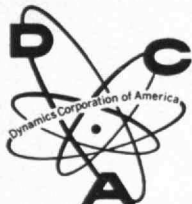
Official United States Navy Photograph

ANOTHER EXAMPLE OF **MASSA** CAPABILITY

DASH, the unmanned radio controlled helicopter, which is launched from ASW Fleet Destroyers, is armed with two MK-44 Acoustic Homing Torpedoes. The sonar sensing target seeking mechanism of the light-weight MK-44's is presently being manufactured by the Massa Division - the first contract awarded to an industrial manufacturer.

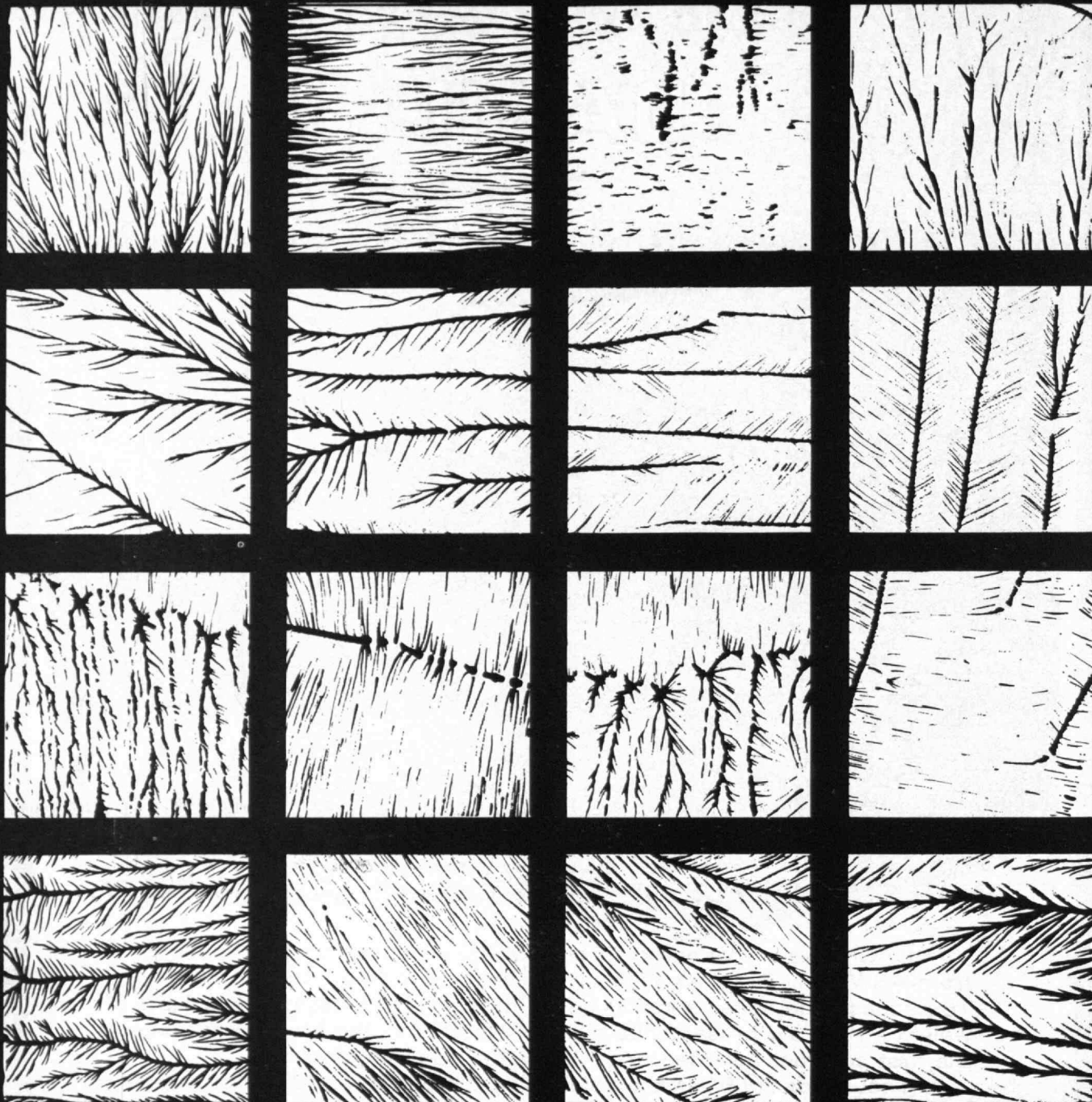
Thousands of MK-44 transducers have been delivered and accepted on schedule — proof of Massa's ability to provide critical sonar devices in large production quantities without a variance in specifications. Massa's specialized capabilities are available to government and industry for the continuing design and manufacture of complete underwater surveillance systems.

Write for Sonar Capabilities Brochure



Equal Opportunity Employer

MASSA DIVISION
DYNAMICS CORPORATION OF AMERICA
280 LINCOLN ST. HINGHAM, MASSACHUSETTS 02043



The Lincoln Laboratory, a research center of the Massachusetts Institute of Technology, conducts a program of general research with applications to urgent problems of national defense and space exploration. Scientists and engineers of many disciplines are engaged in fundamental investigations and technological development in selected areas of advanced electronics. All qualified applicants will receive consideration for employment without regard to race, creed, color or national origin. Lincoln Laboratory, Massachusetts Institute of Technology, Box 28, Lexington, Massachusetts 02173.

Solid State Physics
Information Processing
Radio Physics and Astronomy
Radar
Computer Applications
Space Surveillance Techniques
Re-entry Physics
Space Communications
A description of the Laboratory's work will be sent upon request.

Technology

Review

Reg. U.S. Patent Office

Published monthly from November to July inclusive, on the 27th day of the preceding month, and copyright © 1965 by the Alumni Association of the Massachusetts Institute of Technology.

VOLTA TORREY

Editor and Publisher

WILLIAM T. STRUBLE

Managing Editor

RICHARD F. WRIGHT

Advertising Manager

RUTH KING, *assistant to the editor*;
NANCY SARKISIAN, *assistant to the
advertising manager*; J. J. ROW-
LANDS, FRANCIS E. WYLIE, and JOHN
I. MATTILL, *editorial consultants*.

Alumni Association of M.I.T.

Samuel A. Groves, '34

President

D. P. Severance, '38

Executive Vice-president

Gregory Smith, '30

Vice-president

Philip H. Peters, '37

Vice-president

Frederick G. Lehmann, '51

Secretary

Inquiries regarding editorial con-
tents, requests to republish, subscrip-
tions, and advertising may be sent to

Technology Review
Room E19-430, M.I.T.
Cambridge, Mass. 02139

Telephone: Area Code 617, UNI-
versity 4-6900, Extension 4871.

An annual subscription to Technol-
ogy Review is \$4 in the U.S., \$4.50 in
Canada and elsewhere, and a single
copy, 60 cents. Three weeks must be
allowed to effect a change of address,
for which both the old and the new
address of the subscriber should be
given.

The office of publication is 10 Ferry
St., Concord, N.H., where The Review
is printed by The Rumford Press. Sec-
ond-class postage is paid at Concord,
N.H.

OUTLOOK ON MAN'S FUTURE19

In a series of special essays, scholars deal with the questions implicit in the theme of an M.I.T. Alumni Seminar.

FOOD AND HEALTH: CONTRASTS DEEPEN20

Nevin S. Scrimshaw warns that the food gap between privi-
leged and developing nations is increasing alarmingly.

PROSPECTS IN LAW23

It can be used to preserve tradition, says Professor Milton
Katz of Harvard, or it can help civilize the future.

THE ECONOMICS OF YEAR 200125

Professor Charles Kindleberger believes that, as human num-
bers grow, the greatest problem will be privacy.

CAN MAN GUIDE SOCIAL CHANGE?27

Historian Bruce Mazlish suggests that our ability to shape
future society is curtailed by virtue of being human.

Opened for Students28

M.I.T. dedicates centers for materials research and student
activities and honors Vannevar Bush and President Stratton.

A Hub for Student Life—And How It Grew30

William H. Byrn, Jr., '66, reviews the genesis of a building
that advances the development of a residential campus.

Some Thoughts for Freshmen36

President Stratton speaks to new students on the present and
future meanings of their undergraduate years.

New Paths in Education39

Alumni officers return for a fresh view of changes in curri-
cula, policies, and the campus.

\$2,000,000 Is Alumni Goal43

Fund's theme for year will be "Toward a Complete Educa-
tional Experience."

Alumni Leaders Honored47

Seven persons and two organizations receive the Alumni
Association's highest award.

Individuals Noteworthy 4

The Trend of Affairs 33

Notable New Books 35

Feedback 48

COVER: Computer design by Sanford
Libman, '65, and Jon Price, '64, in Pro-
fessor Robert Preusser's Visual Design
class. Oscilloscope output of equations is
photographed through three filters.



INDIVIDUALS NOTEWORTHY

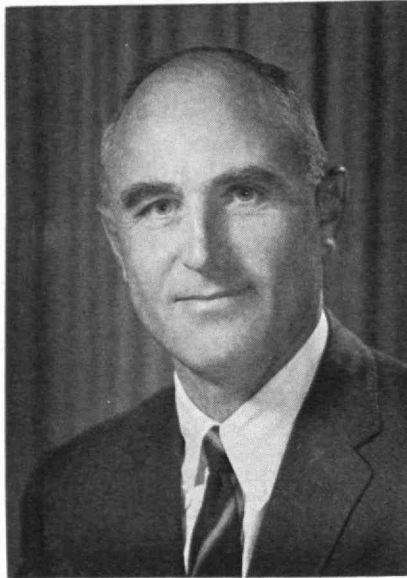
Department Head

Professor Ascher H. Shapiro, '38, an authority on fluid dynamics and a leader in engineering education, is the new head of the M.I.T. Department of Mechanical Engineering. A member of the Institute's teaching staff for 25 years, he succeeds H. Guyford Stever, who left M.I.T. to become president of the Carnegie Institute of Technology in Pittsburgh. Professor Emeritus C. Richard Soderberg, '20, has been acting head of the Department pending the appointment of a successor to Professor Stever.

Professor Shapiro also has been chairman of the M.I.T. Faculty, but he has resigned this position in order to continue teaching and research while serving as head of the Department.

Professor Shapiro has received wide recognition for his development of motion-picture films for engineering education. He was founder and first chairman of the National Committee for Fluid Mechanics Films sponsored by the National Science Foundation, and is chairman of the Committee on Educational Films of the Commission on Engineering Education. At M.I.T. he headed a curriculum study in 1958, then helped apply the results to the development of what is called the "engineering science curriculum" in the Mechanical Engineering Department.

Dr. Shapiro's research and professional activities have been related to the engineering problems of power production and propulsion engines. During World War II, he directed a Navy laboratory for the development of torpedo engines. He was a member of the Lexington Project that in 1948 evaluated the technical feasibility of nuclear-powered aircraft, and in 1953 he directed Project Dynamo, which evaluated for the Atomic Energy Commission the technology and economics of nuclear power for civilian use. He has been a member of advisory groups to the National Advisory Committee for Aeronautics and to the Office of the Secretary



PROFESSOR SHAPIRO

of Defense, and is a member of the Scientific Advisory Board of the U.S. Air Force.

A native of New York City, Dr. Shapiro received S.B. and Sc.D. degrees from M.I.T. in 1938 and 1946.

His honors include the 1960 Richards Memorial Award of the American Society of Mechanical Engineers "for outstanding achievement in engineering."

Mathematician from Abroad

Klaus F. Roth, Professor of Mathematics at Imperial College, London, England, is at M.I.T. this year under a teaching appointment from the Institute and a Senior Foreign Scientist Fellowship awarded by the National Science Foundation. He arrived in July for a 12-month tenure and is teaching a course in number theory, consulting with students and Faculty, and doing research.

This year 49 scientists from abroad have received NSF fellowships, which are given to distinguished scientists who can make significant contributions to scientific research and education in American universities. Professor Roth in 1958 received the medal of the International Mathematics Congress and is one of only 10 mathematicians so honored since 1936.

New Coaches

The M.I.T. Athletic Department has appointed Thomas P. McLennan, Dennis D. Buss, '65, and Frank F. Musker to its coaching staff.

Mr. McLennan, who retired from the U.S. Air Force in August after 21 years of service, will be supervisor of the M.I.T. Pistol and Rifle Ranges and varsity pistol and rifle coach. He is the current Massachusetts State Indoor Pistol Champion.

Mr. Buss, who lettered in crew at M.I.T., will be freshman lightweight crew coach, and Mr. Musker, a graduate of Boston University, is assigned as gymnastic coach.

Acting Department Head

Glenn A. Berchtold has been appointed acting head of the M.I.T. Department of Chemistry. Arthur C. Cope, who had been head of the Department since 1945, is now Camille Dreyfus Professor.

Dr. Berchtold was graduated from the University of Illinois and came to M.I.T. after receiving his Ph.D. degree from Indiana University in 1959. He was appointed assistant professor in 1961, executive officer of the Department in 1963, and associate professor in 1964.

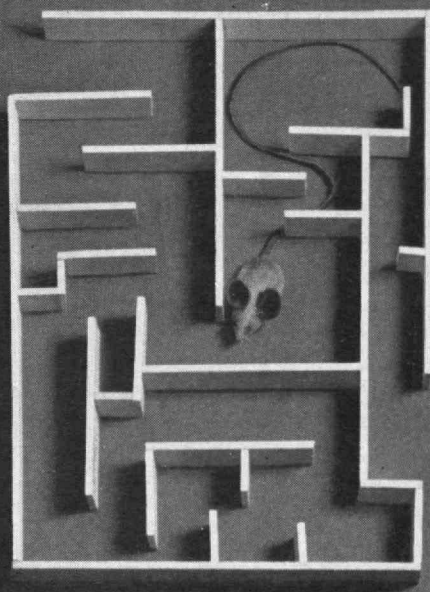
Irving H. Cowdrey: 1884-1965

A teacher at M.I.T. for 44 years, Associate Professor Emeritus Irving H. Cowdrey, '05, died last June 13.

Professor Cowdrey was born in Fitchburg, Mass. He received the bachelor of science degree from M.I.T. and joined the Institute's staff as an assistant in mechanical engineering immediately after graduation. He retired in 1949.

Professor Cowdrey was the author of a number of scientific papers in the publications of the American Society of Mechanical Engineers and was a co-author of the textbook, *Materials Testing*. He was a member of the American Society of Testing Materials, the American Society for Steel Treating, and the International Society of Testing Materials. He is survived by two daughters.

(Continued on page 6)



why the individual doesn't get lost at Kelsey-Hayes

At Kelsey-Hayes, you're not a mouse in the maze of a corporate structure. Here you're not lost or sidetracked while waiting for the Company to "discover" you. Why? Because you're discovered the day you're hired. You're hired because you're very promising, but that's only the beginning. It's *our* very important job to follow your career closely; see that you are given the opportunity to use *all* of your talents and advance accordingly. We need you because our Company is growing

rapidly. We're the world's largest producer of automotive wheels, hubs, drums, etc., and we're now also a leader in the Aerospace and Hand-Tool industries; building everything from retro-rockets to orange-juice machines. We also need you because every year many of our top people retire. Indeed, there is "room at the top." In a young man we ask for: (1) a restless ambition (2) a good brain, but an even better disposition (3) the ability to get along with people.

We offer: (1) a vigorous, growing Company (2) the right size (large enough to need your talents . . . small enough to continually recognize you as an individual) (3) opportunities for advancement limited only by your own qualities.

To learn more about us, contact your Placement Director or write for our brochure: "The Future Belongs To Those Who Build It". Write College Relations Representative, Kelsey-Hayes Company, Romulus, Michigan.

WILFRED D. J. MACDONNELL '34
President, Kelsey-Hayes Company

An Equal Opportunity Employer

*Our Recruitment Manager will be Visiting
M.I.T. in March, 1966*



(Continued from page 4)

Ralph T. Jope: 1906-1965

Business Manager of The Technology Review for 37 years, Ralph T. Jope, '28, died unexpectedly last July 13 in New York City. Mr. Jope had served M.I.T. continually in many tasks; he had been a leader in the development of the Institute's athletic program and had played an important part in a number of major fund-raising programs. Since graduation he had been president of his class.

Born in Allston, Mass., in 1906, he attended schools in Fryeburg and Portland, Maine, before coming to M.I.T., where he took his degree in engineering administration.

For more than a decade he was Secretary of the Institute's Advisory Council on Athletics, a position in which he acted in effect as Director of Athletics. His work in this office was a principal factor in the progress of rowing at M.I.T. and, in recognition of his contribution, a crew shell was named in his honor in 1948 and the Institute in 1963 established the Jope Cup that is now awarded annually at the sprint championships of the Eastern Association of Rowing Colleges.

Mr. Jope in 1948 became assistant executive director of the Committee on Financing Development and in 1951 was appointed director of the Institute's Development Office, a position he held nine years.

A devoted Alumnus, he was a member for many years of the Alumni Council. He was treasurer of the M.I.T. Alumni Association for nine years and was a member of the Alumni Fund Board from 1940, when it was established, until 1948. During the 1930's he was a member of the Advisory Council on Musical Clubs and from 1939 to 1949 was director of the Register of Former Students. Recently he was elected chairman of Alpha Theta Chapter, Sigma Chi Fraternity.

Under his leadership, the Class of 1928 gave the Institute a 25th Reunion Gift of \$85,790, the largest such gift made up to that time, for the establishment of the "Class of 1928 Endowment Fund."

Posthumously, he was awarded a Bronze Beaver with a citation re-



RALPH T. JOPE, '28

calling "his optimistic enthusiasm" and declaring: "His efforts have brought honor to M.I.T. and his name will be long remembered."

Mr. Jope, who lived in Winchester, Mass., was active also in civic and church affairs and in the business community. He was a founder and officer of Artisan Industries, and a director of Lenox, Inc.

He is survived by his wife, two daughters, a son, and one grandson.

C. E. Fuller: 1871-1965

A member of the M.I.T. Faculty for more than 50 years, Charles Edward Fuller, '92, Professor Emeritus of Theoretical and Applied Mechanics, died last July 26. After receiving the S.B. degree in mechanical engineering from M.I.T., he joined the teaching staff of that Department. Although he became emeritus professor in 1941, he continued lecturing until 1944.

For nearly 20 years early in his career, Professor Fuller was in charge of instruction in the testing materials laboratory of the Department of Mechanical Engineering. From 1935 to 1937 he was chairman of the Faculty and for many years was chairman of the departmental committee on graduate courses and a member of what is now the Committee on Graduate School Policy.

An authority on applied mechanics, he was co-author with W. A. Johnston, '92, of a text covering the subject as taught at M.I.T. His own research resulted in a large number of professional papers and reports, and in the testing materials laboratory he designed a number of testing machines for special applications. His teaching of applied mechanics ranged from elementary subjects to advanced courses in the theory of elasticity, and he was interested in both theory and experiment.

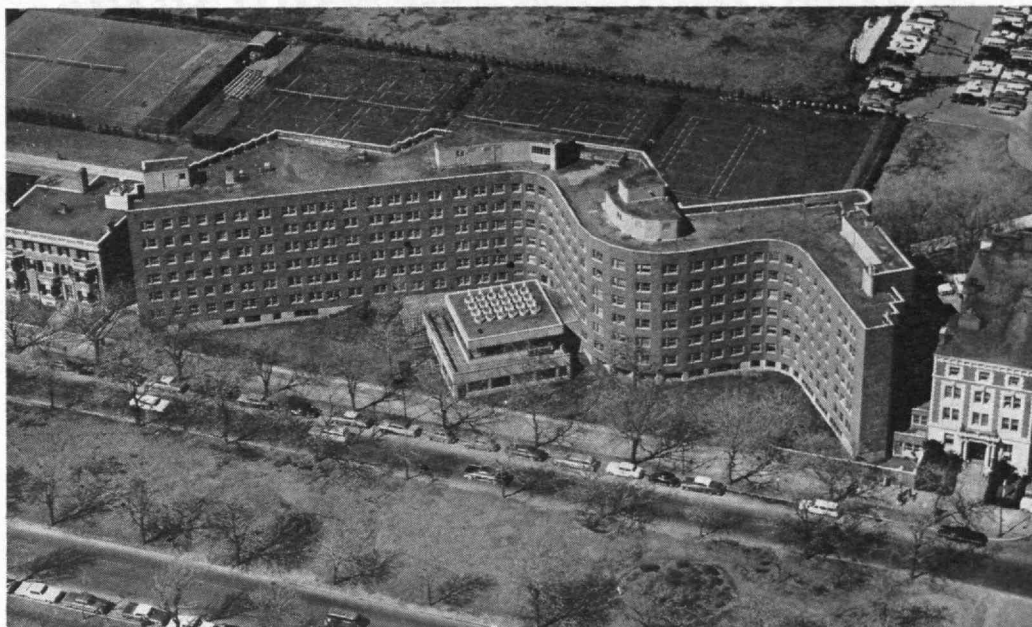
Professor Fuller was also interested in the design and construction of military ordnance and for many years taught ordnance engineering to students in the Reserve Officers' Training Corps and to army officers assigned to M.I.T. for graduate study. He was himself a reserve colonel in the Ordnance Corps and from 1933 to 1942 was Dean of Army Students at the Institute.

His professional associations included memberships in the American Society of Mechanical Engineers, the American Association for the Advancement of Science, the American Mathematical Society, and the American Society for Engineering Education.

Professor Fuller was born in Boston and for most of his life resided in Wellesley, where he was an active leader in the development of public utilities for the community. He is survived by a sister.

(Continued on page 9)

The M.I.T. Class of '48 Studied Here



Baker House, built by Aberthaw in 1947. First serpentine building in America.

and the Class of 2038 will too!

For over 63 years, clients who realize that they must depend entirely on the general contractor's reputation for past performance have depended on Aberthaw for quality, on-time performance and best final cost.

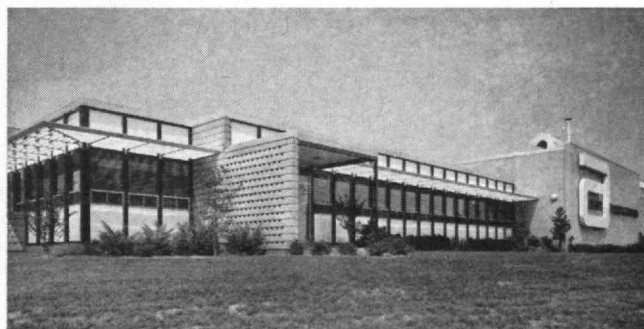
Through these years, on an ascending scale, Aberthaw has built some of America's outstanding structures, from Maine to California, for an ever-increasing list of top American companies.

Today Aberthaw is prepared to handle your project, anywhere in America, offering factual presentations, expert advice, reliable negotiations, responsible management, economical performance and the quality that made Aberthaw famous.

Write to us on your letterhead, and we will send you a complete list of our work, our clients and any specific information you may desire.



Carlton Beach Hotel, Bermuda. Built for Hotel Corporation of America in 1961.



Research Building, King of Prussia Park, Pa., built in 1960 for Abbott Laboratories.

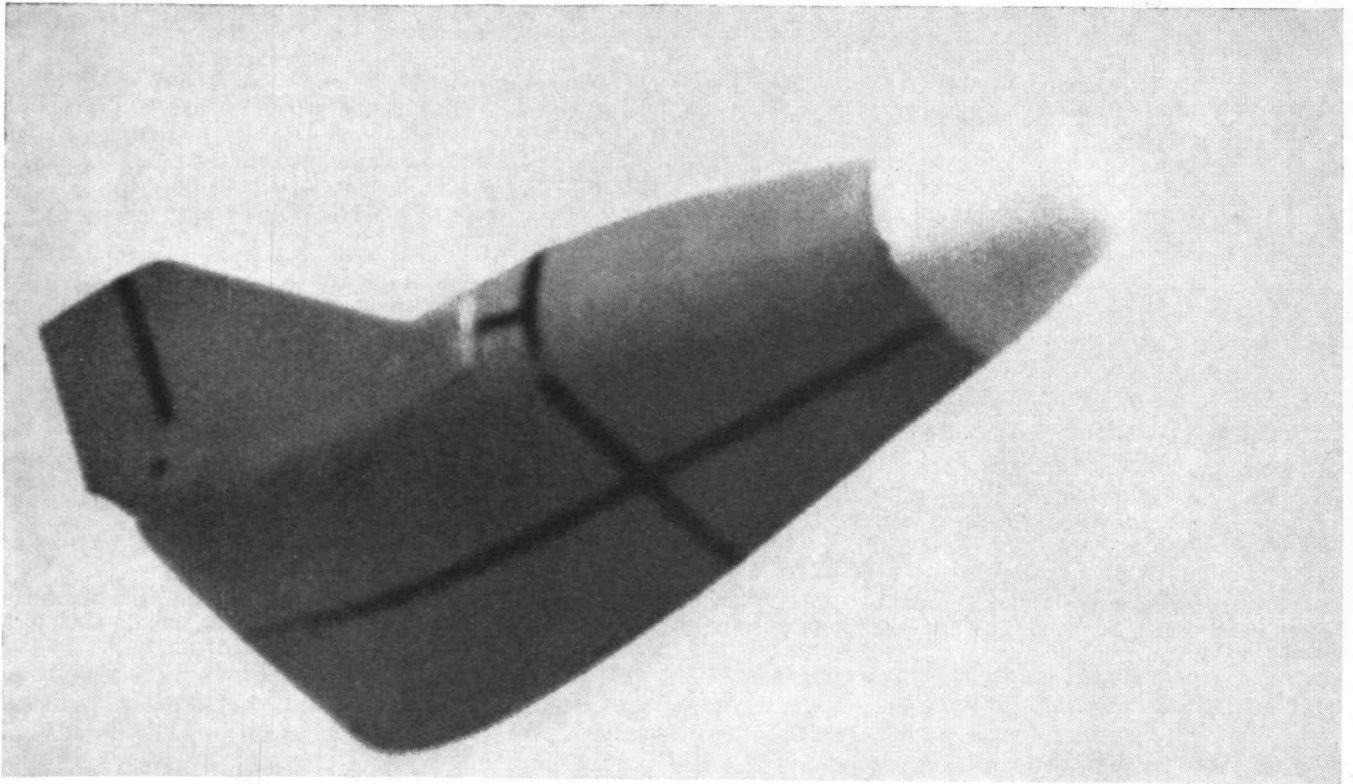


ABERTHAW CONSTRUCTION CO.

60 State Street, Boston, Massachusetts 02109 / 482-8830
Philadelphia, Pennsylvania / Washington, D.C. / San Francisco, California

***Continued progress in space requires
a vehicle that maneuvers from orbit
through hypersonic reentry
to precision landing
at any jet airport in the United States.***

**Creative engineering at Martin
is making it happen.**



PRIME lifting body, a step toward this goal, is scheduled for Air Force flight tests in space next year.

MARTIN COMPANY

A DIVISION OF MARTIN MARIETTA CORPORATION
BALTIMORE, ORLANDO, DENVER, CANAVERAL

Associate Dean

Emily L. Wick, '51, Associate Professor of Food Chemistry, is the new Associate Dean of Student Affairs at M.I.T. She succeeds Jacquelyn A. Mattfeld, who resigned to become Dean of Sarah Lawrence College.

Miss Wick, of Rockport, Mass., assumes primary responsibility for women students at M.I.T., but is working also in the general area of student affairs and intends to continue teaching and research in the Department of Nutrition and Food Science.

Dr. Wick received the B.A. degree in 1943 and the M.A. in 1945 from Mount Holyoke College, where she taught chemistry for a year. She came to M.I.T. in 1946 and completed her work for the doctorate in organic chemistry in 1951. After four years as a chemist in the Flavor Laboratory at Arthur D. Little, Inc., she returned to M.I.T. as a post-doc-



PROFESSOR WICK

toral fellow for two years. In 1959 she was appointed assistant professor of food chemistry and was promoted to associate professor in 1963 in the Department of Nutrition and Food Science.

She has been author of or contributor to almost a score of scholarly papers on flavor analysis and preser-

vation. She is scientific lecturer of the Institute of Food Technologists; and she is a member of the American Chemical Society, the American Association for the Advancement of Science, Sigma Xi, and the American Association of Cereal-Chemists.

Her brother, Dr. Warner A. Wick, is dean of students at the University of Chicago. Her father, James L. Wick, of Youngstown, Ohio, is an alumnus of the Class of 1906.

A sailing enthusiast, she was a member of the board of governors of Sandy Bay Yacht Club for 10 years and headed the Junior Sailing Program for five. She is a member of the board of directors of the Alumnae Association of Mount Holyoke College.

New Housemaster

Dean of Residence Frederick G. Fassett, Jr., will serve this year also as Master of Ashdown House, succeeding Professor Francis Bitter. Professor Bitter assumed the duties of Master in 1962 in addition to his professorship in the Department of Geology and Geophysics.

(Continued on page 10)

H. H. Hawkins & Sons, Co.

175 California Street

Newton, Mass.

Builders

STEVE HAWKINS '57

THOMAS E. SEARS

INCORPORATED

INSURANCE

Special and skillful handling of
unusual insurance and reinsurance problems

Thomas E. Sears (1882-1958) '03

Thomas E. Sears, Jr. '32

Richard W. Sears

Hugh L. Walker '24

BOSTON

Park Square Building

31 St. James Avenue

Telephone

HA 6-8300

(Continued from page 9)

New Association Posts

John S. Pfeil, Jr., '43, has been appointed to the staff of the M.I.T. Alumni Association. In the newly created post of business manager, he will co-ordinate the business activities of the Association office, The Technology Review, and the Alumni Fund, working closely with Frederick G. Lehmann, '51, Secretary of the Alumni Association.

Mr. Pfeil came to M.I.T. from Systems Development Corporation, Lexington, Mass., where he was head of management operations for one of the company's divisions. He was previously on the airport management staff at Logan International Airport. A native of Massachusetts, he studied economics at Brown University and entered M.I.T. in 1942 as an aviation cadet in the Meteorology-A program. He received a bachelor of arts degree in geography from Boston University.



JOHN S. PFEIL, JR., '43

Richard F. Wright of Natick, Mass., joined The Review staff October 1 as advertising manager. A native of New England and a Babson Institute graduate, Mr. Wright was formerly with The Boston Post and advertising manager of *The New Englander*.

Liaison Officers

Arthur J. Collias, '59, Peter B. Franz, '55, and David H. Robbins, '54, have been appointed as Industrial Liaison Officers at the Institute.

Mr. Collias received an S.B. degree in metallurgy from M.I.T. and an M.S. degree in materials science from Stanford University in 1963. Prior to his current appointment, he was a project engineer at Avco Corporation.

Mr. Franz received S.B. and M.S. degrees in mechanical engineering from M.I.T. and Northeastern University, respectively. After his graduation from the Institute he served in the U.S. Army Ordnance Corps at Frankford Arsenal, and later joined The Foxboro Company.

Mr. Robbins holds S.B. and S.M. degrees in civil engineering from M.I.T. and for a period was a research engineer in the Department of Civil Engineering. He later joined IBM as a systems engineer and more recently was chief of data processing for the Boston Regional Planning Project.

(Continued on page 12)

albert

PIPE • VALVES • FITTINGS

Steel / Wrought Iron / Aluminum
Plastic / Stainless / Alloy

PIPE FABRICATION

From one coded pressure vessel to complete power plant pre-fabricated piping.

SPEED-LAY

Economical pipe system for oil-gathering, dewatering and chemical processing lines.

PIPE PILING & ACCESSORIES

Composite pile extensions. Non-field welding H-Beam points and sleeves. Steel-sheet piling.



WRITE FOR FREE BROCHURE:
ALBERT PIPE SUPPLY CO., INC.
101 VARICK AVE., BROOKLYN, N. Y. 11237
Telephone: 212 HYacinth 7-4900
S.G. ALBERT '29 • A.E. ALBERT '56

VERTICAL TRANSPORTATION SPECIALISTS

Elevators — Dumbwaiters
Stairlifts — Special Home Units
Electric — Oil Hydraulic

Complete factory facilities including engineering, design and fabrication for original installations and modernization programs.

INDUSTRIAL • COMMERCIAL
INSTITUTIONAL • RESIDENTIAL

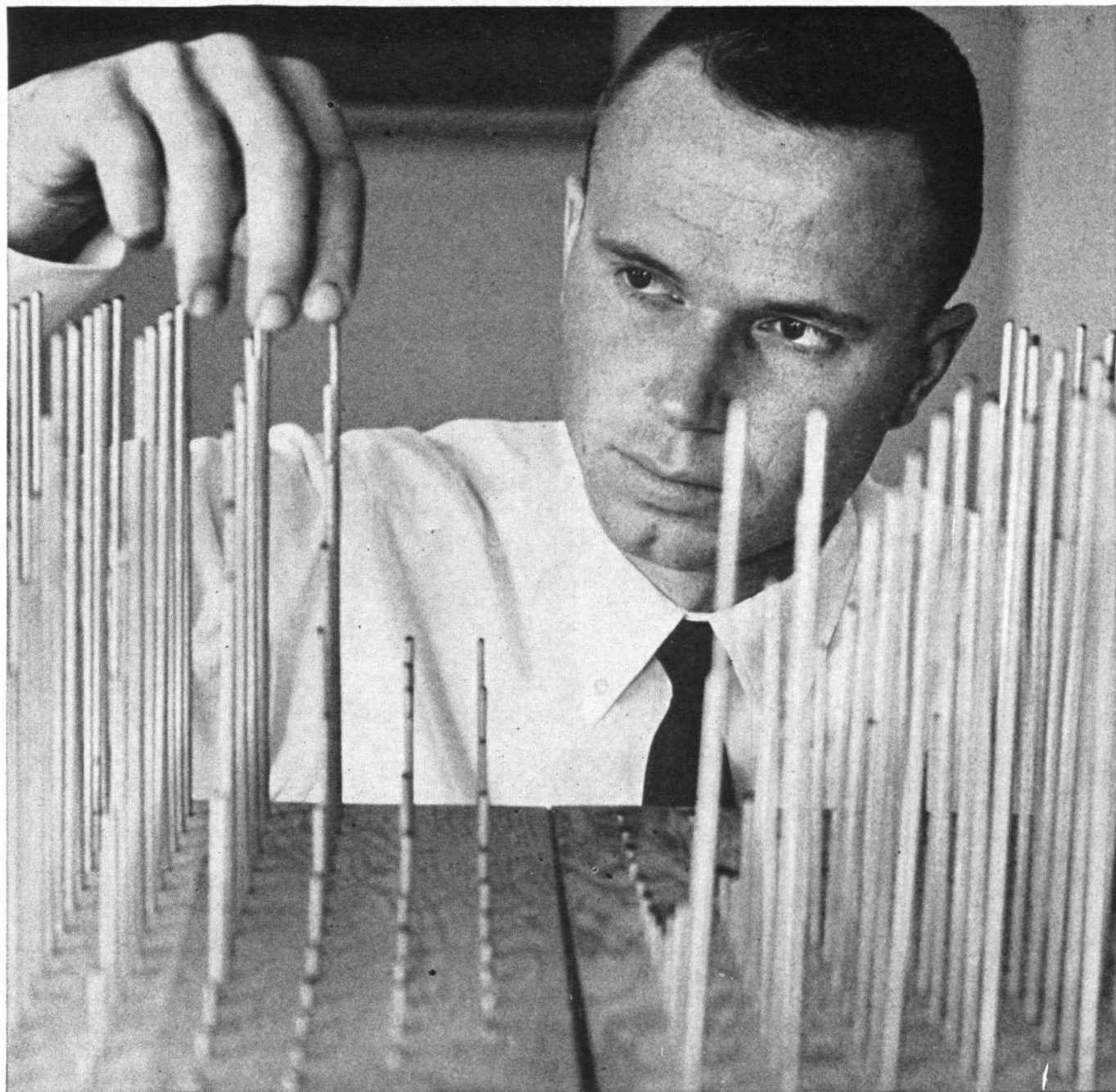
24-hour service on maintenance, repairs and parts replacement.

COpley 7-6006

Beckwith

ELEVATOR COMPANY, INC.
8 St. Mary's Street Boston 15, Mass.

EST. 1889



Special agent plots overthrow of hidden enemy.

The hidden enemy is vapor in automobile fuel lines. Causes vapor-lock that stalls cars on warm days.

Our special agent is Dr. John O. Becker, University of Illinois, '64. Here he plots a temperature-pressure-fuel relationship as he specializes in fuel volatility at our Whiting, Ind., Research & Development lab. One of his theories has already been proven. The next step—a practical application useful in re-blending gasoline. To make it less prone to vapor-lock.

In his spare time, Dr. Becker is boning-up on car

engines of the future. Maybe someday he'll help us formulate a new kind of fuel for a yet-unknown engine.

How about you? Looking for a challenge—and a chance to contribute to the exciting new technologies shaping tomorrow's world? Your opportunity may be here at American Oil. Whether you're a mechanical engineer, as Dr. Becker is, or a chemist, metallurgist, mathematician or physicist.

For more information, write J. H. Strange, American Oil Company, P.O. Box 431, Whiting, Indiana.



AMERICAN OIL COMPANY

(Continued from page 10)

New Posts

Named in the news of promotions, elections, and appointments recently were:

Marshall B. Dalton, '15, as Vice-president, American Academy of Arts and Sciences . . . *Augustus B. Kinzel*, '21, as President, the Salk Institute for Biological Studies in San Diego . . . *Edmund J. Thimme*, '23, as General Manager, Electric Department, Public Service Electric and Gas Company;

John M. Campbell, '25, as President, Engineering Society of Detroit . . . *Charles E. McCulloch*,

'26, as President, Foster Wheeler International Company . . . *Kenneth A. Smith*, '27, as Dean, School of Architecture, Columbia University;

Russell P. Westerhoff, '27, as President, Ford, Bacon & Davis, Inc. . . . *Arnold A. Archibald*, '28, as Administrative Vice-president, Jones and Laughlin Steel Corporation;

Charles A. Bicking, '31, and *Paul A. Robert*, '32, respectively, as Executive Secretary and as Vice-president, American Society for Quality Control . . . *John K. Jamieson*, '31, as President, Standard Oil Company of New Jersey . . . *Alexander H. Kuhnelt*, '31, as President, New York Chapter, State Society of Professional Engineers . . . *Kenneth J. Germeshausen*, '31, as Chairman of the Board and Director of Research, Edgerton, Germeshausen & Grier, Inc.;

Stuart R. Fleming, '32, as Vice-president, Stone & Webster Engineering Corporation . . . *Otway W. Rash*, '32, as Vice-president, Midwest Division, Carling Brewing Company . . . *Vernon O. Bowles*, '33, as Manager—Engineering, Mobil Oil Company;

John E. Fogerty, '33, as Assistant Chief Metallurgist, Central Alloy District, Republic Steel Corporation . . . *Ernest E. Lockhart*, '34, as Assistant Director—Technical Research and Development, The Coca-Cola Company . . . *Walter F. McCutcheon*, '34, as Assistant Treasurer, Koppers Company, Inc.;

Philip S. Vincent, '36, and *Gerald G. Probst*, '56, respectively, as Vice-president—Field Engineering and as Vice-president—Engineering, UNIVAC Division, Sperry Rand Corporation . . . *Louis B. Wetmore*, '36, as Deputy Commissioner

of Planning and Development, city of Chicago;

William B. Bergen, '37, as a Director, Martin-Marietta Corporation . . . *C. Lawrence Raymond*, '37, as Vice-president, Shell Chemical Company . . . *Norman B. Leventhal*, '38, as a Director, Associated General Contractors of Massachusetts;

James P. Pollock, '38, as Assistant Chief Geologist—Exploration, The Hanna Mining Company . . . *James S. Bruce*, '39, as Associate Director, Photographic Technology Division, Kodak Park Works, Eastman Kodak Company . . . *Robert H. Cotton*, '39, as Vice-president, Continental Baking Company;

Leo A. Kiley, '39, as Brigadier General, the United States Air Force . . . *Charles M. Edwards*, '40, as Secretary, Los Angeles District, Institute of Electrical and Electronics Engineers . . . *Charles W. Freeman*, '40, as Los Angeles District Manager, Manufacturers Mutual Fire Insurance Company;

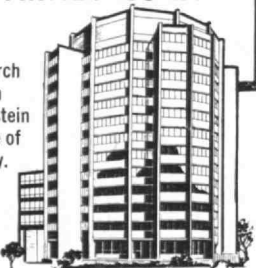
Barrett L. Taft, '40, as Manager—Materials Engineering, Orlando Division, Martin Company . . . *Francis B. Herlihy*, '42, as Vice-president, American Brake Shoe Company . . . *Louis Rosenblum*, '42, as Editorial Vice-president, Society of Photographic Scientists and Engineers;

Thomas J. Kent, Jr., '43, as Development Coordinator, San Francisco . . . *S. James Spitz, Jr.*, '43, as Group Vice-president, Tenneco Chemicals, Inc. . . . *Daniel I. Cooper*, '46, as Publisher, "International Science and Technology" Magazine;

Roger E. Drexel, '46, *Vaughan C. Chambers*, '51, and *Robert L. Richards, Jr.*, '51, respectively, as Manager—Planning Division, In-

(Continued on page 14)

BUILT BY
W. J. BARNEY CORP.



The Ullmann Research
Center for Health
Sciences, Albert Einstein
College of Medicine of
Yeshiva University.

Kiesler & Bartos
Architects

An unusual building

This unique 12-sided building for Albert Einstein College of Medicine of Yeshiva University presented complex construction problems.

With careful planning the work proceeded smoothly, speedily, economically . . . the reason why over 70% of our business comes, year after year, from those for whom we have built before.

W. J. BARNEY CORPORATION
Founded 1917
INDUSTRIAL CONSTRUCTION
101 Park Avenue, New York
Alfred T. Glassett, '20, President

• DRIVMATIC •

Systems for Automatic Fastening of Aerospace Structures

RIVETS—SLUGS—HIGH STRENGTH FASTENERS

General-Electro Mechanical Corp.

"GEMCOR"

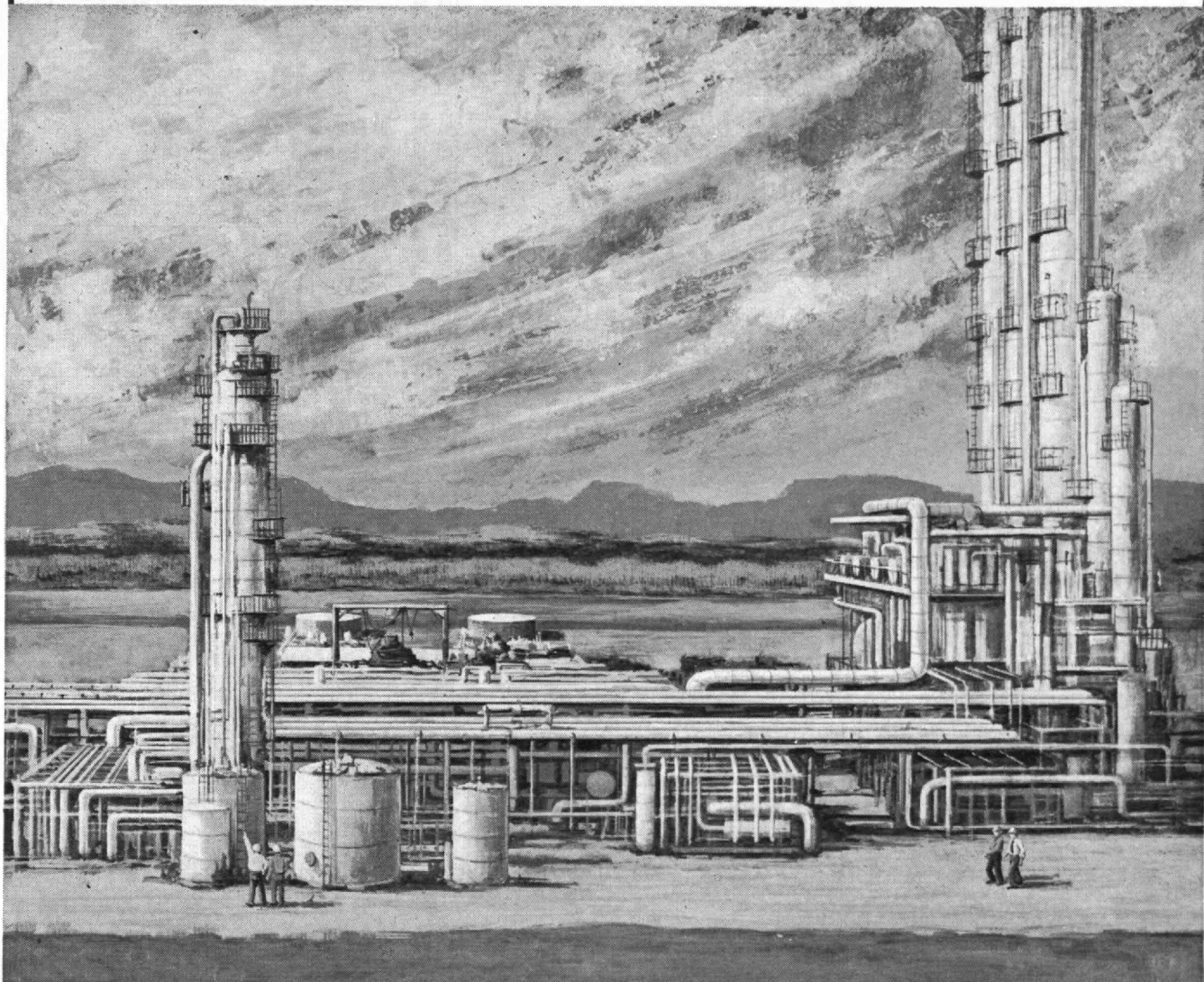
Buffalo, New York 14207

716-876-9685

THOMAS H. SPELLER '29



FOR ENGINEERING EXCELLENCE, CALL IN STONE & WEBSTER



Combined capacity of 15 plants selecting Stone & Webster's Ethylene Process in 1964 will approximate $\frac{1}{4}$ world output

Stone & Webster Engineering Corporation last year provided engineering services for 15 new ethylene plants, with a total capability of about 4 billion pounds per year. Stone & Webster's Ethylene Process allows increased yields and improved product purity and recovery with minimum energy requirements.

Two of the largest of these new ethylene plants currently being designed and constructed by Stone & Webster are:

A new plant for Jefferson Chemical Company at Port Neches, Texas, that will have an annual capacity of 400 million pounds of ethylene and 150 million pounds of propylene.

A new plant for Shell Oil Company at Norco, Louisiana, with an annual capacity of 500 million pounds of ethylene and 90 million pounds of propylene. The new ethylene plants outside the United States are located in India, Japan, Holland, England, France and Egypt.



STONE & WEBSTER Engineering Corporation

New York • Boston • Chicago • Houston • San Francisco • Los Angeles • Seattle • Washington, D. C.

Stone & Webster Engineering Limited - London • Stone & Webster Engineering S. A. - Paris • Stone & Webster Engineering N. V. - Amsterdam
Associated Engineers & Consultants, Inc. - Garden City, N. Y.



for casual or country wear
OUR DISTINCTIVE SPORT SUITS
in interesting designs and colorings

Sport suits have become an indispensable part of a suburbanite's clothing wardrobe. Ours are made by us on our good-looking 3-button model...with patch pockets and welted edges...in handsome, long-wearing Scottish wool tweeds—many woven exclusively for us. Coat, vest and trousers, in greys, browns, lovats and mixtures. \$145

Also Polo coats and attractive new raglan sleeve topcoats for country wear, from \$150

Prices slightly higher west of the Rockies.

ESTABLISHED 1818

Brooks Brothers
CLOTHING
Mens & Boys' Furnishings, Hats & Shoes

346 MADISON AVE., COR. 44TH, NEW YORK, N.Y. 10017
 46 NEWBURY, COR. BERKELEY, BOSTON, MASS. 02116
 PITTSBURGH • CHICAGO • SAN FRANCISCO • LOS ANGELES

(Continued from page 12)

dustrial and Biochemicals Department; as Director, Photo Products Research Laboratory (Parlin, N.J.); and as Assistant Manager, Florence, S.C., Plant, E. I. du Pont de Nemours & Company;

Drs. Stanley J. Adelstein, '48, W. Gerald Austen, '51, and Frederic L. Hoch, '52, respectively, as Assistant Professor of Anatomy, as Associate Professor of Surgery, and as Assistant Professor of Medicine, Harvard Medical School . . . Alexander W. Coombs, '48, as Vice-president—Manufacturing, Cabin Crafts, Inc.;

Russell A. Gwillim, '48, as Executive Vice-president, Chicago Rawhide Manufacturing Corporation . . . Robert J. Swartz, '48, as President, Keystone Camera Company, Inc. . . . Dennis J. Carney, '49, as Vice-president—Long Range Facility Planning, United States Steel Corporation;

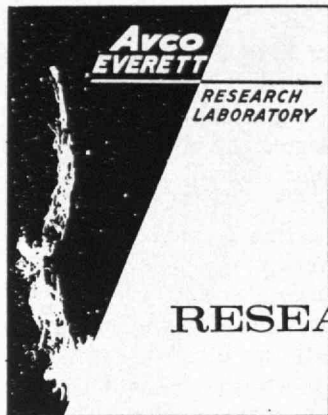
Robert M. White, '49, as Director, U.S. Environmental Science Services Administration . . . Mark H. Baxter, '50, as Vice-president, First National Bank of Chicago . . . James W. Geiser, '50, as Vice-president, West Penn Power Company;

John G. Meeker, '52, as Assistant to the General Manager, Fairchild Instrumentation . . . Hilmar B. Christianson, Jr., '53, as Director of Industrial Engineering, Chesapeake and Ohio Railway and the Baltimore and Ohio Railroad . . . Yu-Chi Ho, '53, as Associate Professor of Engineering and Applied Physics, Harvard University;

Solomon J. Buchsbaum, '57, as Director, Electronics Research Laboratory, Bell Telephone Laboratories . . . Augustus C. Walker, '57, as Director of Research, The Polymer Corporation . . . Roger M. duPlessis, '59, as Assistant Chief Engineer, Navigation Systems Division, Autonetics;

William E. Davis, '62, as Manager, Custom Car Planning, Car Product Engineering Office, Ford Motor Company . . . Chester W. Diercks, Jr., '62, as General Manager, X-ray Division, Westinghouse Electric Corporation . . . Edward Kalachek, '63, as Associate Professor of Economics, Washington University.

(Continued on page 16)

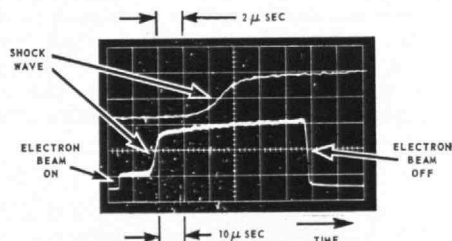


RESEARCH REPORT

How to Dissect a Shock Wave

Shock waves are the essence of violence. Inside strong shock waves, a gas undergoes large changes in both its physical and chemical properties. For many purposes a shock wave can be treated as a sharp discontinuity in gas properties, but it is actually a finite region whose thickness is several times the distance a gas particle travels between collisions. The structure of this region holds the key to a number of fundamental problems in fluid mechanics and chemistry.

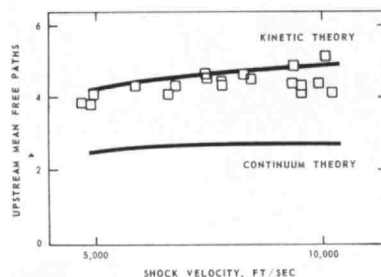
Detailed information on the structure of shock waves has been obtained in an elegant experiment at our laboratory.¹ The density variation through the shock is measured by the Rutherford scattering of a high-energy electron beam, the scattered beam intensity being directly proportional to the gas density. We have used this technique in our 24-inch-diameter shock tube to study strong shock waves in both monatomic and polyatomic gases. The result is a theorist's dream: an experiment whose output signal can be read directly as a plot of density against distance through the shock wave — just the information produced by the theorist's computer. And every shock is self-calibrating, since the output includes the known density in front of the shock wave.



Scattered electron beam intensity showing density variation through an argon shock wave.

A basic fluid dynamics problem: Does the Navier-Stokes continuum fluid description adequately predict shock-wave structure, or do the changes occur in so short a distance

that continuum theory is no longer valid? Must we resort to the more fundamental, but more elaborate, description in terms of particle kinetic theory? Our measurements of density profiles up to shock speeds of 10,000 ft/sec in a monatomic gas (argon) clearly show that a particle description must indeed be used.



Shock thickness in argon

A basic chemistry problem: How is the kinetic energy of flowing gases redistributed by the shock wave into the translational energy mode and the internal modes of rotation, vibration and dissociation? Information about the distribution of energy can be determined from density measurements.² For low-speed shocks, experiments in polyatomic gases show that all the energy goes into the translation and rotation in the shock front, and is subsequently redistributed among the other modes in a relaxation zone. For higher speed shocks, such as those at reentry velocities, our measurements show that the energy sharing is so rapid that a near-equilibrium distribution of energy is reached inside the shock.

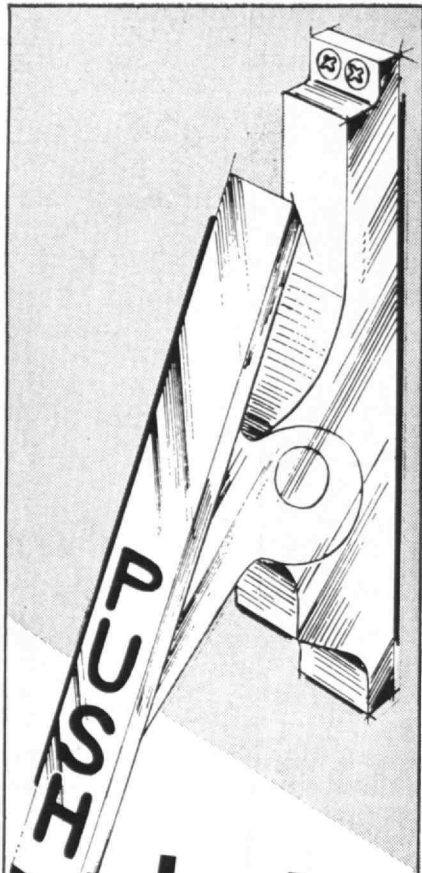
An intriguing future problem is the shock structure at meteor velocities, where the energy in the radiation field becomes comparable to the energy in the flow field.

1 Camac, M., Avco-Everett Research Laboratory Research Report 172 (December 1963); also *Phys. Fluids* 7, 1076-1078 (July 1964)

2 Camac, M., Avco-Everett Research Laboratory Research Report 194 (October 1964)

AVCO-EVERETT RESEARCH LABORATORY

A division of Avco Corporation
Everett, Massachusetts 02149



Looks as good as it locks...

When a modern building goes up at MIT these days, chances are that even prosaic items like entrance and exit hardware will be redesigned inside and out to reflect the architects' advanced ideas. At D. H. Eskin Co., we are constantly developing such hardware, like the extra-narrow, paddle-operated panic exit device shown above. A "first" at MIT, this device now becomes standard good design on modern structures everywhere.

**D. H. ESKIN
CO., INC.**

1255 TREMONT STREET
BOSTON, MASS. 02120
(617) 442-8700

YALE DISTRIBUTORS

INDIVIDUALS NOTEWORTHY

(Continued from page 14)

Honors to Alumni

Recipients of recent awards and similar distinctions have included:

Walter J. Hamburger, '21, the Edward Robinson Schwarz Lecture-ship Award by the American Society of Mechanical Engineers . . . *Crawford H. Greenewalt*, '22, an Honorary Doctor of Laws degree by Bowdoin College . . . *Leslie B. Cutler*, '28, the Lemuel Shattuck Award Medal by the Massachusetts Public Health Association;

Elisha Gray, '28, an Honorary Doctor of Laws degree by Michigan State University . . . *John R. Newell*, '34, an Honorary Doctor of Laws degree by Nasson College . . . *Major General James McCormack, Jr.*, '37, an Honorary Doctor of Engineering degree by Northeastern University;

Leonardo Zeevaert, '40, the Allied Professions Medal by the American Institute of Architects . . . *Wallace S. Murray*, '42, Commencement Speaker and an Honorary Doctor of Education degree by Western New England College . . . *Robert C. Seamans, Jr.*, '42, the Godfrey L. Cabot Award by the New England Aero Club;

Colonel Gerald M. Cravens, '48, the Commendation Medal by the U.S. Army . . . *Charles P. Priesing*, '57, the James R. Rumsey Memorial Award by the Michigan Water Pollution Control Association . . . *Michael A. Ruttenberg*, '60, a Research Fellowship by the Weizmann Institute of Science;

Bernard H. Ris, '61, the Outstanding Young Engineer Award for 1965 by the Engineering Society of Detroit.

(Concluded on page 60)

ENGINEERS/SCIENTISTS

ATOMIC PERSONNEL . . . A leading placement service to the engineering and scientific fields.

Our staff of experienced engineers is prepared to assist you in solving your career problems. The fees for our national service are paid by the employer.



Write for confidential application or... send us your personnel requirements.

Arthur L. Krasnow '51, President
ATOMIC PERSONNEL, INC.

Suite 1504T, 1518 Walnut St., Phila., Pa. 19102

NEW

General purpose

Stop motion control

Dual-time delay

One-shot a-c coupled

Relay latch-in

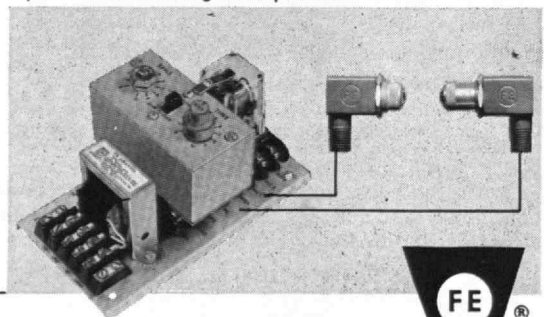
Single-time delay

Photoelectric counter

One-shot d-c coupled

PLUG-IN LOGIC MODULES for Photoelectric Controls

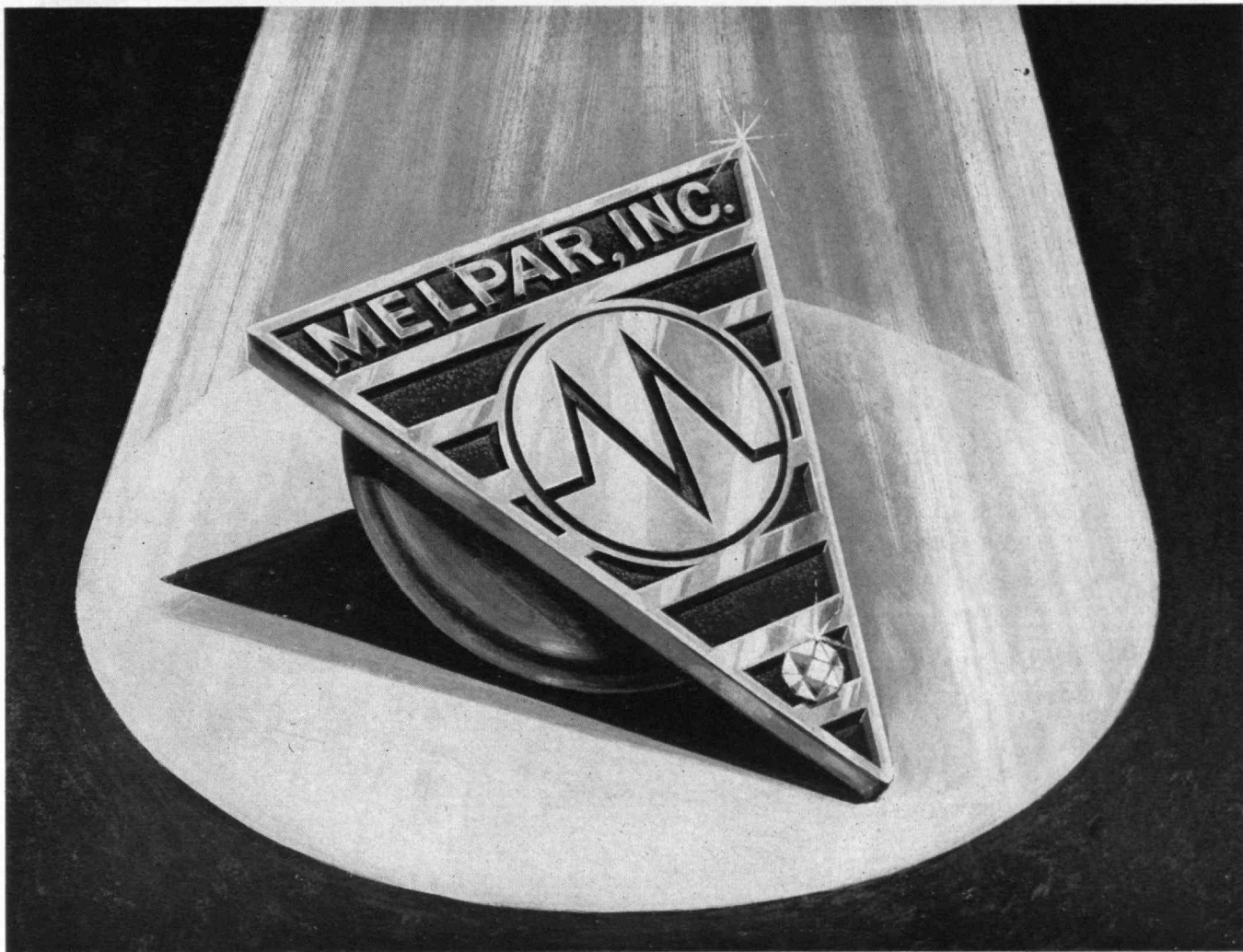
Pick any one of eight independent modules to suit your specific requirement. Use with your own control panel or with FARMER chassis Type TRB. These all-silicon transistor modules drive relays or static switches. Available off the shelf. Installation and maintenance is very simple. Compactness saves valuable space. Complete line of light-sources and photocells also available. Write or phone for catalog and prices.



**FARMER ELECTRIC
PRODUCTS COMPANY, INC.**

Tech Circle, Natick, Mass. 01762
Telephone: 617-653-8850

FE®



HOW LONG IS TWENTY YEARS?

Not long, for some companies; but for an organization specializing in modern electronic research and development, it is as old as the industry itself. Our first twenty-year man receives a pin like the one above this year.

Melpar has helped pioneer many of the technological breakthroughs of the past twenty years—what will the advances be in the next twenty years? We think we know what a few will be. We're working on them now. If you are a scientist or engineer interested and capable of working ahead of the pack, we want to talk to you now.

Wide diversification at Melpar in more than 110 major contracts offers many challenging assignments to qualified scientists and engineers.

We have immediate requirements for:

PHYSICISTS

for developmental work in the use of infra-red detectors and optics and their application for chemical analysis. Additional requirements in all phases of thin film microcircuitry.

ELECTRONIC ENGINEERS

to work in Pattern Recognition, Network Synthesis, Random Noise Theory, Speech Synthesis, Data Retrieval, Microwave Systems Receiver Design, Circuit Design, and Machine Intelligence.


MELPAR INC
A SUBSIDIARY OF WESTINGHOUSE AIR BRAKE COMPANY
 7709 Arlington Boulevard, Falls Church, Virginia
An equal opportunity employer

SPACE SCIENCES • SPECIAL PURPOSE DATA PROCESSING • ELECTRONIC WARFARE SYSTEMS • ORDNANCE DEVICES • SIMULATION AND TRAINING
 SPECIAL DETECTION SYSTEMS, BIOLOGICAL AND CHEMICAL • COMMUNICATIONS • LIFE SCIENCES • MICROELECTRONICS • TEST AND EVALUATION

PLANNING

METHODS OF REGIONAL ANALYSIS: AN INTRODUCTION TO REGIONAL SCIENCE by *Walter Isard et al.*, xxix + 784 pages, \$9.50

LOCATION AND SPACE-ECONOMY: A GENERAL THEORY RELATING TO INDUSTRIAL LOCATION, MARKET AREAS, LAND USE, TRADE, AND URBAN STRUCTURE by *Walter Isard*, xix + 350 pages, illustrated, \$8.75

INDUSTRIAL COMPLEX ANALYSIS AND REGIONAL DEVELOPMENT: A CASE STUDY OF REFINERY-PETROCHEMICAL-SYNTHETIC-FIBER COMPLEXES AND PUERTO RICO by *Walter Isard, Eugene W. Schooler, and Thomas Vietorisz*, xvii + 294 pages, \$8.75

THE LOCATION OF THE SYNTHETIC-FIBER INDUSTRY: A CASE STUDY IN REGIONAL ANALYSIS by *Joseph Airov*, xii + 203 pages, \$11.50

SITE PLANNING by *Kevin Lynch*, 248 pages, 41 figures, 221 marginal drawings, \$10.00 ①

THE PUBLIC LIBRARY AND THE CITY edited by *Ralph W. Conant*, 224 pages, November 17, \$6.75 ①

HOUSING

THE PREFABRICATION OF HOUSES by *Burnham Kelly*, Detailed study of the industry in postwar America, xxii + 166 pages, illustrated, \$12.50

THE FEDERAL BULLDOZER: A CRITICAL ANALYSIS OF URBAN RENEWAL, 1949-1962 by *Martin Anderson*, xiv + 272 pages, \$5.95 ①

THE FUTURE OF OLD NEIGHBORHOODS: REBUILDING FOR A CHANGING POPULATION by *Bernard J. Frieden*, viii + 209 pages, \$7.50 ①

HOUSING AND ECONOMIC PROGRESS: A STUDY OF THE HOUSING EXPERIENCES OF BOSTON'S MIDDLE-INCOME FAMILIES by *Lloyd Rodwin*, xii + 228 pages, illustrated, \$10.00 ①

MAN'S STRUGGLE FOR SHELTER IN AN URBANIZING WORLD by *Charles Abrams*, xii + 308 pages, 41 photos, \$7.95 ①

HOUSING IN LATIN AMERICA by *Albert G. H. Dietz, Marcia N. Koth, and Julio A. Silva*, 224 pages, \$10.00

TRANSPORTATION

PRINCIPLES AND TECHNIQUES OF DEMAND FOR URBAN AREA TRANSPORTATION by *Brian V. Martin, Frederick W. Memmott, III, and Alexander J. Bone*, xiii + 224 pages, October 20, \$6.00

URBAN RAIL TRANSIT: ITS ECONOMICS AND TECHNOLOGY by *A. Scheffer Lang and Richard M. Soberman*, xii + 139 pages, \$7.50 ①

THE VIEW FROM THE ROAD by *Donald Appleyard, Kevin Lynch, and John R. Myer*; deals with the esthetics of highways: how they look to the driver, and what this implies for highway design, 64 pages, 9¾ by 15, 72 halftones, 60 drawings, \$15.00 ①

MIT PAPERBACKS

MEGALOPOLIS: THE URBANIZED NORTHEASTERN SEABOARD OF THE UNITED STATES by *Jean Gottmann*, \$3.95

THE CITY: ITS GROWTH, ITS DECAY, ITS FUTURE by *Eliel Saarinen*, \$2.95

EXPERIENCING ARCHITECTURE by *Steen Rasmussen*, \$2.95

THE IMAGE OF THE CITY by *Kevin Lynch*, \$2.95 ①

BEYOND THE MELTING POT: THE NEGROES, PUERTO RICANS, JEWS, ITALIANS, AND IRISH OF NEW YORK CITY by *Nathan Glazer and Daniel Patrick Moynihan*, \$1.95 ①

THE NEW ARCHITECTURE AND THE BAUHAUS by *Walter Gropius*, \$1.95

GARDEN CITIES OF TOMORROW by *Ebenezer Howard*, \$1.95

OTHER

REGIONAL DEVELOPMENT AND PLANNING: A READER edited by *John Friedmann and William Alonso*, 744 pages, \$9.75

SCIENCE AND ECONOMIC DEVELOPMENT: NEW PATTERNS OF LIVING by *Richard L. Meier*, xviii + 266 pages, \$10.00

THE HISTORIAN AND THE CITY edited by *Oscar Handlin and John Burchard*, xii + 299 pages, \$7.50 ①

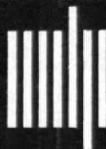
THE VOICE OF THE PHOENIX: POSTWAR ARCHITECTURE IN GERMANY by *John E. Burchard*, 200 pages, illustrated, December, \$12.50

INTENTIONS IN ARCHITECTURE by *Christian Norberg-Schulz*, 300 pages, 102 halftones, January '66, \$10.00

NEW ARCHITECTURE IN BOSTON by *Joan E. Goody*, 128 pages, cloth \$5.00, paper \$2.95

BOOKS

FROM THE M.I.T. PRESS



Cambridge, Massachusetts
02142



Books marked ① are published by The M.I.T. Press for The Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University.



OUTLOOK ON MAN'S FUTURE

Some of the great issues that confront mankind were examined at an M.I.T. Alumni Seminar in September. Speakers and participants addressed themselves to the general theme, "Outlook on Man's Future," and President Julius A. Stratton, '23, raised pertinent questions in his remarks at the opening of the seminar:

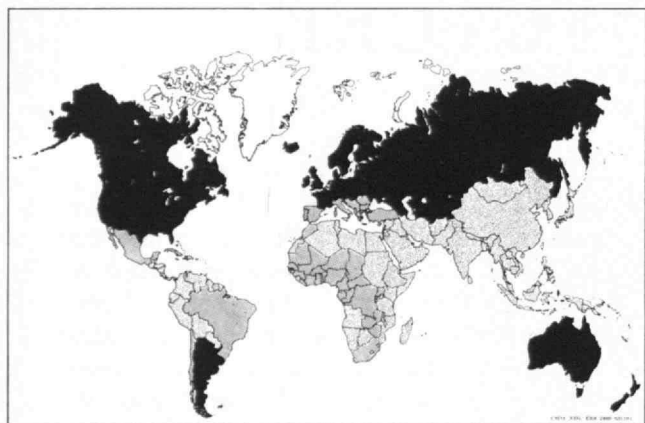
"How are we to keep pace with the tremendous revolution going on all about us—a revolution that is transforming to the very roots the character of modern life and modern society? Without some understanding of the great currents of progress in science and engineering, how can we grasp fully the economic and political issues affecting our country? Or how are we to follow intelligently the influence of all these developments upon trends in the arts?"

Lecture sessions led by Professors Lucian W. Pye, Walter A. Rosenblith, and Richard M. Douglas dealt with subjects: *The Future of Industrial Society*, *Man's Future Environment*, and *Values—Prospects and Directions*. Arranged by a committee headed by Professor Morris Cohen, '33, the seminar closed with a discussion led by James R. Killian, Jr., '26, on: *What Problems for Mankind Will Science Create or Solve?* Beginning on the next page is the first in a series of papers prepared by the seminar's teachers for the readers of *The Review*.

FOOD AND HEALTH: CONTRASTS DEEPEN

*Great inequalities among nations hold danger for all
and require exceptional efforts to devise new foods*

By **Nevin S. Scrimshaw** / *Head of the Department of Nutrition and Food Science, M.I.T.*



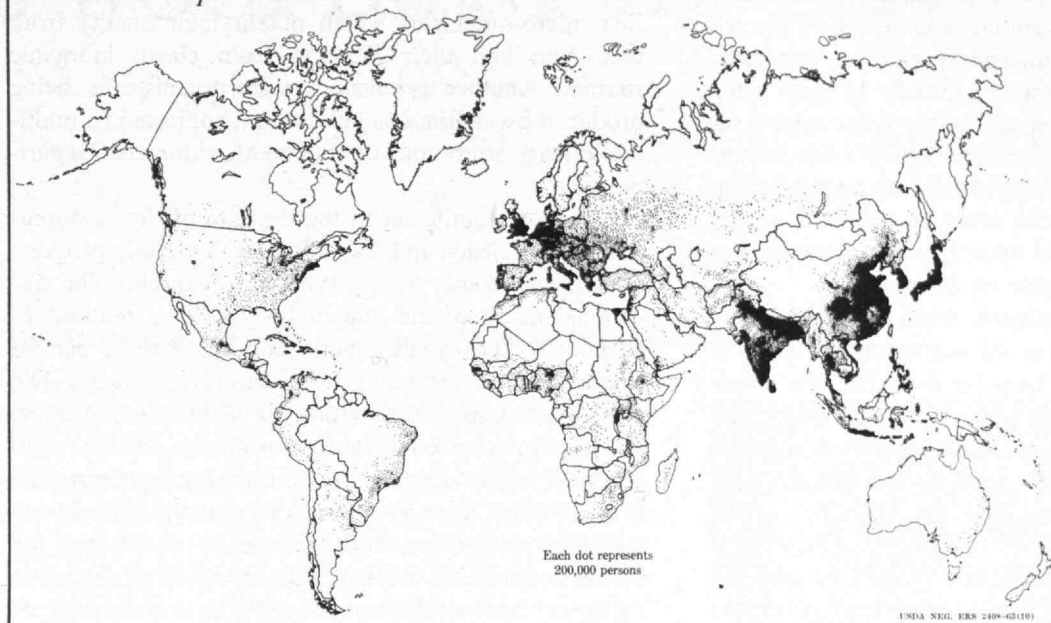
Average food consumption in calories per day: Black—2,900 and up; diagonal lines—2,400-2,900; light areas—under 2,400.

Sharp and dangerous differences in both food and health divide the privileged and underprivileged populations, the developed and the technically underdeveloped countries of the world. In the former, food is abundant, nutritional deficiency diseases virtually abolished, infectious diseases rarely a threat to life; and research gives promise even of conquest of many forms of cancer and degenerative disease. The land area and population engaged in farming have decreased steadily and yet per capita food production continues to rise spectacularly and huge surpluses of food result. One consequence of the abundance of food and the general prosperity is that obesity has become a significant problem.

Contrast this with conditions in the less developed countries. Although nearly four-fifths of their populations are engaged in agriculture, food production in the majority is falling behind the rate of population increase. Malnutrition stunts the growth and development of most of the children, malnutrition and infection interact to give mortality rates for toddlers 20 to 40 times higher than in the U.S. and western Europe, and in many rural and slum areas from one-third to one-half or more of children born alive die before five years of age. Infections precipitate frequently fatal nutritional disease and are themselves more severe and often a cause of death because resistance is lowered by the underlying chronic malnutrition.

As bad as health conditions are today in the less developed countries, they were matched or exceeded in the United States and western Europe only 50 to 100 years ago. In the early 1900's, infant and child mortality rates in New York, London, Paris, and other major cities of Europe were higher than those in most technically underdeveloped cities and countries today. Deaths from tuberculosis, smallpox, diphtheria, dysentery, measles, whooping cough, influenza, and even

World Population



from scurvy, rickets, pellagra and beriberi were common, and great epidemics of plague, cholera, and typhus were still a living memory. Major factors in their control have been better nutrition and sanitation, together with preventive immunization and medical care.

A trend to improved health and lower mortality already has begun in most less developed countries. Through programs of the World Health Organization and other international and bilateral agencies concerned with health, mortality rates have been cut in half since the 1930's. The improvement continues, despite decreased food production per capita in the less developed countries as a whole, largely because the deficit is being counteracted by the surplus food production of the United States and other countries with a highly efficient agriculture. This obviously cannot continue indefinitely. In the meantime the sharing of the less developed countries in some of the advantages of modern public health and preventive medicine has added to the rate of population growth and increased the pressure on food supplies. Natural factors and organized programs to limit family size thus far have had little influence on the demographic gap.

In the less developed countries, per capita availability of grains, legumes, roots and tubers in the period from 1935 to 1939 was estimated at 270 kilograms per capita. By 1950 it had fallen to 210 kilograms per capita, and an optimistic projection for 1971 is 285 kilograms per capita, compared with 470 kilograms for the communist countries and 670 for the technically developed countries of the West. Over the past quarter century all of the increase in food output in both North America and western Europe has come from increasing yield per acre by over 100 per cent. In Asia the increase was only 7 per cent and for the entire less developed world only 8 per cent. Compare

this with the need to double world food production by the early 1980's and triple it by the year 2000 if the present rate of population increase continues. The need will be greatest in the countries whose rate of increase in food production is lowest.

These facts must be faced and solutions found, or the resultant further increase in social and political instability in the less developed countries will lead to disaster for all. Food production *must* go up, and the rate of demographic growth *must* come down. The needed elements for producing more food by conventional means are well known: education and training at all levels, improved varieties of plants and animals, insecticides and fertilizer, mechanization and irrigation, reduction of losses due to rodents and spoilage, and credit facilities or other financial provisions to make application of these measures possible. At last, knowledge of cheap and practical methods of birth control is also available.

There is tendency among the ill informed to blame the effectiveness of health programs for the world's current food problems. On the contrary, only a well-nourished and healthy population can learn readily and can have high productivity. Only parents assured of living offspring can be expected to practice family planning. Fertility control is most acceptable where health services are most effective. Health services must also make available the means of such control, and need to be accompanied by improvements in agriculture and the economy as a whole.

The effort required is far greater than the present combined international, bilateral, foundation, industrial, and private assistance to less developed countries. Technical assistance is too spotty, too little, and may soon be too late. The world food gap still is increasing alarmingly, demographic projections are staggering, and poverty and social unrest are the rule; and low-

income countries are becoming trapped by increasing dependence on external sources of food and money. The industrialized countries must come to recognize that the application of scientific and technical knowledge to the developing countries requires a concerted and sustained effort of the magnitude of that being given to the conquest of space and a substantial fraction of that devoted to armaments. Either a revolutionary breakthrough in the application of knowledge in the less developed countries must be achieved or the time is not far off when we must face the consequences of mass starvation in many of them.

The present world population could be fed easily by the agricultural production of conventional foods if only there were time for crop yields in the less developed countries to catch up with population needs and if purchasing power kept pace. Since neither is occurring today, it is prudent to look to less conventional solutions to part of the food problem. There is no fixed nutritional requirement for the relatively costly sources of protein—milk, meat, and eggs. Legumes and the oilseed meals are acceptable alternatives. After the seeds of soy, cotton, sesame, peanut, and sunflower plants are commercially pressed, the resultant meal contains approximately 50 per cent protein, and the oil can be sold to pay much of the cost.

One-third of a properly processed oilseed meal mixed with two-thirds of cereal grain gives a mixture whose quality and concentration of protein is adequate for all human needs. Over three million pounds of the low-cost protein-rich vegetable mixture, Incaparina, developed on this principle by the Institute of Nutrition of Central America and Panama, will be sold in Colombia and Guatemala this year to make a drink with the protein value of milk, at one-fifth the cost. Similar mixtures are commercially available in India and South Africa, and are under development for many other countries in accord with their local agricultural resources and food habits.

Much has been written of the possibilities of protein from the sea, and indeed this has been an important factor in Japan's remarkable ability to feed well its dense population. The Department of Nutrition and Food Science at M.I.T. is playing a major co-operative role in the U.S. Bureau of Commercial Fisheries' apparently successful "crash" effort to develop and test a practical fish protein concentrate before the close of the current year. Like food yeast which can be grown readily on molasses and on vegetable waste of many kinds, the cost will be higher than that of the oilseed meals, and ways of incorporating important quantities into human diets have yet to be proved in practice. Nevertheless, it can be expected to make a contribution not included in present world food supply projections.

Algal proteins have attracted much attention, and the idea of a mechanical cow to extract edible protein from the juice of grass and leaves has been seriously advanced. The problem thus far has been poor palatability and relative high cost, but these are merely a

challenge to food technologists. Our Department also is co-operating with private industry in the evaluation of the nutritive value for human consumption of protein-rich micro-organisms which obtain their energy from petroleum and their nitrogen from cheap inorganic sources. Another promising micro-organism is being produced by continuous culture and subjected to multidisciplinary study and development within the Department.

Still more significant to those aware of the resources of modern science and technology is the steady progress toward new foods wholly synthetic in origin. The nutritional needs of the human body can be reduced to chemically known substances, and all of these can be synthesized or extracted from natural products. The needed vitamins and minerals are already so available and cheap as to constitute no problem. Of the eight essential amino acids needed instead of protein, the two for which there is commercial demand already are available by the ton, and there is no doubt that the others could be if demand were established. The Department has established the safety in animals of cheap, wholly synthetic energy sources. One of these, 1, 3 butanediol, already available in carload lots, will soon be tested in man for the first time in the M.I.T. Clinical Research Center.

At present it is prohibitively expensive to feed humans on diets of synthetic nutrients, and no suitable formulations are available, but highly palatable, attractive synthetic foods are within reach of modern technology. In the meantime, several companies have extracted pure protein from soybeans, spun it into nylon-like fibers and formulated it into protein-rich foods simulating bacon, ham, chicken, ground beef, and sea foods. Wholly new foods are now being developed from this material.

This brief essay would be incomplete without reference to the further developments in food processing and in preventive medicine which we can anticipate in the United States and other industrialized countries. One is aware from even a casual visit to a food supermarket that a large proportion of the food products now on sale were unknown or unavailable 10 to 20 years ago. The trend to convenience foods continues at an accelerating pace, and new methods of food conservation such as freeze-drying and ionizing radiation for pasteurization and sterilization make possible further advances.

In the field of health, convenient contraceptive techniques will become universally available and increasingly utilized. Preventive immunizations and antibiotics will continue to increase in variety and effectiveness so that infections will pose even less threat in the future. Substantial progress in the prevention and control of coronary heart disease and many forms of cancer seems certain. The real problem ahead will be how to share these benefits with the less developed countries of the world.

Scientists and engineers have a major role to play in meeting this challenge.

PROSPECTS IN LAW

A flexible legal system that is founded on principle promotes orderly transitions in a changing society

By **Milton Katz** | *Henry L. Stimson Professor of Law, Harvard University*

On September 17, 1960, three Negroes and one white man together were denied service at a refreshment counter in a store in New Orleans. They indicated they would "sit there until they were going to be served." On complaint of the store manager, the police arrested them. They were convicted under a Louisiana statute making it a misdemeanor to remain "in a place of business after the [owner] has ordered such person to leave the premises." The Supreme Court of Louisiana affirmed the conviction. The United States Supreme Court reversed on the ground that the statute as applied violated the Fourteenth Amendment. In a subsequent similar case, the U.S. Supreme Court reached a comparable result in reliance on the Civil Rights Act of 1964, passed after the sit-in demonstration itself but pending appeal of the conviction.

In one aspect, law may be regarded as an expression of the established beliefs and practices of a society given effect through rules of conduct. In another aspect, law constitutes a system through which new beliefs and purposes can be given effect in new rules in ways that limit destruction or dislocation of the existing order to the practicable minimum. The two aspects clashed in the sit-in cases.

Protection of the person and property and the maintenance of order are primal functions of law. The Constitution makes due process and equal protection under law a basic principle of the American legal system; and in the last decade, public opinion and social pressures have pushed for vindication of the principle in relation to Negroes.

In the first case, the Supreme Court strove to vindicate the new principle while reaffirming the old. It did so by finding from all the evidence that the storekeeper's dismissal of the four demonstrators had not been a free exercise of his control over his own property but action imposed upon him by the authorities of New Orleans and Louisiana. In the second case, the Court relied on the Civil Rights Act which in effect included restaurants serving the public within a category of "businesses affected with a public interest," long subject to regulation in their relations with the public.

Opinions differ even within the Court itself on the particular cases. We are concerned with their implications for the future of law. This is an epoch of change.



Wide World Photos

Sit-in demonstrations illustrate opposing concepts of law.

In many parts of the world, notably in the newly emerging societies, law is understood only in the first aspect previously described.

In consequence, it is identified with the *status quo* and assumed to be inherently and invariably an obstacle to change. Such an outlook on law is, I believe, related to a certain blindness to the possibilities of peaceful change, and a tendency to polarize choices between a rigid maintenance of the *status quo* and violent change. It is a strength and a glory of American culture that it understands law not only as a structure embodying and vindicating old values but as a shaping process that accommodates change while stabilized by principle. So understood, law need not automatically fight the future but can civilize it.

A little more than a year ago, on August 9, the president of the American Bar Association in a speech to the Association at Miami Beach, as reported in the *New York Times* of August 10, warned that:

There must be no lessening of the concern for the constitutional rights of persons accused of crime. But the first and foremost priority today must be a like concern for the rights of citizens to be free from criminal molestation of their person and property.

He was understood to refer to a controversy engendered by recent decisions of the United States Supreme Court, overturning convictions of state courts for lapses in procedure in arrest, pre-trial detention or trial. Voices have been raised protesting that the Supreme Court has perhaps carried its proper concern for fair procedure to a point of preoccupation with minutiae. In so doing, some believe that the Court has hampered hard-pressed police, prosecuting attorneys, and trial judges in the performance of their duties. Before the same convention, Dean Griswold of the Harvard Law School analyzed the same facts from another angle of vision. He quoted with approval from a statement by Mr. Justice Brennan saying:

If the States . . . undertake to make this responsibility [for vindicating the rights of the accused] their own . . . the frictions and irritants that presently exist in some measure between the States and Federal Courts will rapidly disappear.

Here is a conflict between two broad functions of law both of which give effect to old and tested social purposes: to protect the person and maintain law and order on the one hand, and to assure fair trials to accused persons and protect citizens from possible abuse by authority.

More is involved than a question of emphasis within the scope of legal doctrine and administration. Hoodlumism on the streets and subways is a symptom of problems that fall within the responsibilities of local government—police, prosecuting attorneys, local

courts, and local prison administration. With all respect for the many admirable public servants who serve our society at the local level, often under thankless conditions, we must recognize that local government is, in general, the most poorly organized and weakly manned sector of government in the United States. At times, the effort of the Supreme Court to improve the conduct of local courts and enforcement officers gives an impression of a structure held up by its roof.

The local institutions must be strengthened from below, at the site. It is imperative that citizens and civic leaders lend their sustained efforts to attracting, recruiting, keeping and supporting more qualified men for the magistrate's courts, the municipal courts, the general trial courts, the local police and other local agencies charged with law enforcement and criminal administration.

The role of law in international affairs is a sphere in which constructive possibilities must be rescued from their perilous place between the Scylla and Charybdis of cynicism and wishful thinking. Speaking before the National Press Club on February 18, 1960, Secretary of State Herter proposed to create "certain universally accepted rules of law" to prevent all nations from attacking other nations. Such proposals may embrace several different ranges of meaning. In a broad sense, they comprehend the development of institutions, precepts and procedures to curb threats to the peace and breaches of the peace. In this broad sense, they touch more than law. They involve the functions of statesmanship, diplomacy, and other aspects of human endeavor lying beyond the reach of law, not only as it is but even as it can be. It will not serve the cause of either international order or law to ignore the limits of law and adjudication.

But within the broad range of meanings, there is one that is specifically legal, to which the professional knowledge and skill of lawyers are pertinent. It relates to the development of international legal doctrines and procedures applicable to forms of conduct which, in the terms of the international legal order, correspond to types of conduct legally controlled within domestic legal systems. I have in mind not only the elemental protection afforded by municipal legal systems against injury to the person or property, but also the full range of protection against fraud, defamation, nuisance, conspiracy, interference with advantageous relations, unfair commercial practices, unfair labor practices, breaches of fiduciary responsibility and other wrongs long since defined and recognized in the evolution of mature legal systems.

In this brief summary, I must omit a discussion of operational measures to create an international counterpart of such protection. I may only say that to the extent such measures are effectively taken, a larger sector of international life will have been brought within the scope of the international legal order, and the remainder—which must be dealt with by measures outside of law—will have been correspondingly reduced to somewhat less intractable proportions.

THE ECONOMICS OF YEAR 2001

*By that time we will have a superabundance of people
and the most precious commodity of man will be privacy*

By Charles P. Kindleberger

Professor of Economics, M.I.T.

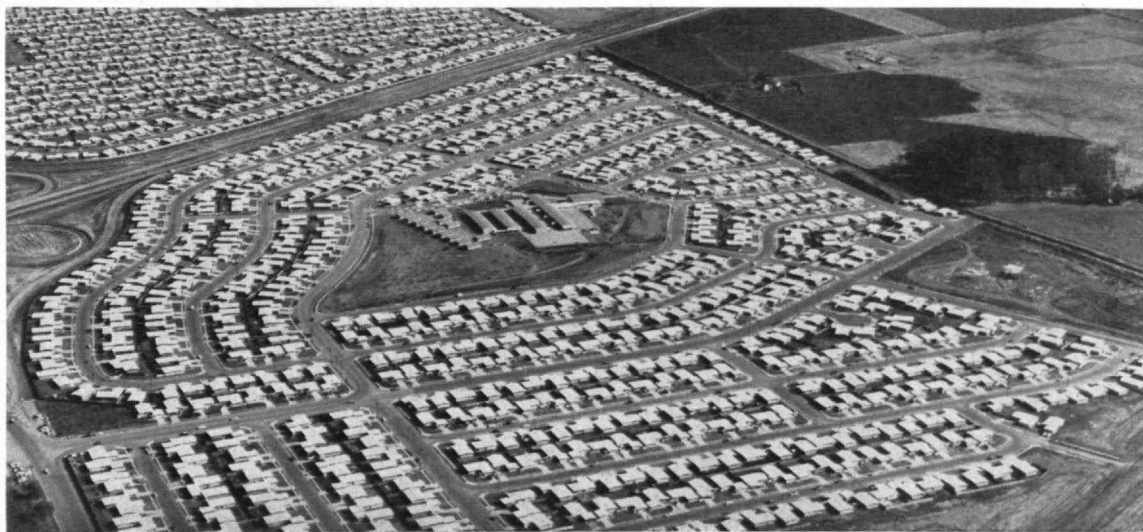
The economics of wartime are easy: a simple problem of maximizing the weight of materiel brought to bear against the enemy, subject to a few constraints. In peacetime, economics has more objectives than the provision of abundance; or the problem is to maximize abundance subject to more and more complex constraints. In addition to abundance, there are also equity, stability, security, and freedom. Much disagreement on economic policy arises not from analytics but from differing weights attached to several targets of policy.

The earliest concern was with abundance—the *Wealth of Nations* as Adam Smith put it in 1776—and despite Kenneth Galbraith's announcement of *The Affluent Society*—the quest for it is with us still. Upper classes in the United States are rich, but the average income recipient has unsatisfied wants and there are substantial regional and minority pockets of poverty. Moreover, outside of Europe and the white Commonwealth the world is positively poor, and in many countries economic growth is not even under way.

If we discuss 2001, however, we can pass the problem of abundance. At 3 per cent rate of growth, United

States income per capita will be more than doubled by that year. A French forecast, excessively optimistic in my opinion, says that French consumption will have increased 2½ times by 1985. Economics lacks a theory of economic growth for the less developed countries, but it will have one shortly. Great resources of manpower and computers are being brought to bear on the intellectual problems. The less developed countries may not have come very far by 2001, but they will have controlled their population rates of growth, I venture to predict, and their rates of growth in goods and services will be substantial. And in these matters, traveling is often more important than arriving.

I assert that economics in 2001 will have the answers to a lot of questions we cannot answer today. Economics is like meteorology—a field with many variables, where small differences in the relations among variables are critical to the character of the outcome, and where experiment is difficult. Like meteorology it stands on the brink of breakthroughs. Unhappily, in its strong subjective element it has one disadvantage over meteorology. Unlike raindrops, people adjust their behavior to the anticipated outcome. Dou-



Clyde Sunderland-Oakland

As our population expands: Tract houses in a California suburb swarm ever further onto neighboring farmland.

ble prices once, and people hold back from buying to wait for them to decline. Double prices the second time, and people rush to the store to get there before the hoarders.

The comparison between economics and meteorology is suggestive for forecasting. With new analytical techniques it will be no longer sufficient to predict that the weather will change and that the economic situation won't. A useful analogy for policy is with medicine. Both economics and medicine are part science, part art. In both there are unanticipated side effects. The role of sulphur drugs and penicillin in medicine is taken in economics by fiscal policy which has abolished depression like pneumonia. There may be a resemblance between depression, which in its mild form cuts out wasteful investment, and pneumonia, the old man's friend, which took off bedridden patients with poor prospects for recovery. And some specialists may do themselves out of a job—the mastoid man and the cyclical analyst. Solving one problem reveals another. In medicine it is geriatrics. My thesis is that achieving abundance, security, stability, and equity will still leave us with the problem of freedom.

Parenthetically, I should perhaps say a word to calm the fears of those who think we are in trouble for lack of resources. Economics in the days of Ricardo and Malthus was the dismal science, but geology has always been more pessimistic. We are always just about to run out of some vital natural resource. For the most part, economists no longer fall for the line about "Our Plundered Planet" or "Standing Room Only." It is impossible to run out of anything in economic terms. All that happens is that the price goes up, which encourages greater efforts to produce the goods in question and the use of substitutes.

The question is not whether we will run out of iron ore or fuel oil or potatoes, but what will be the prices of natural-resource products—food and materials—relative to the prices of other things, and in particular the services of labor. Given the increases in technical efficiency under way and in prospect—for example, mining the floor of the ocean and cultivating the sea for food, there is little reason to expect a reversal in the trend in developed countries where, since 1890, resource products have been falling in price relative to wages.

The population explosion may give some people pause over food, despite the reassurances of Colin Clark in *Man and His Future*. If we deliberately choose to take our abundance in large families, as we have done in this country since 1945, some slowing down in the relative decline in food prices may take place. A resource which is short right now, as many have had occasion to observe, is water. The short-run shortage is real. Over a longer period, the economic question is how much water we want to use when we have to pay for it, rather than regard it as a free good, and whether it is cheaper to bring it longer distances, purify existing sources of polluted water, or desalinate the ocean. Until the cost functions are more clearly visible, we shall probably proceed to do all three.

Nor do I worry about automation leaving us a serious problem of structural unemployment. Robert Solow has shown that there has been no discontinuity in the increase in productivity since the war, and that current unemployment is attributable to lack of total demand rather than any particular change in the demand for skills. Major advances like the computer and atomic energy produce no dramatic tilt in the shape of the time series. Skills sought by the economy are changing and will change, but there is no reason to anticipate a failure of the system to adjust in future as it has in the past.

The problem I see is not abundance but freedom. This is not Galbraith's distinction between private goods and public goods, although for many purposes it amounts to the same thing. I am concerned that we have reached the stage in numbers and abundance where one man's economic activity may adversely impinge on his neighbor.

Adam Smith believed that man was never so innocently engaged as when he was making money, and that each man in advancing his own interest benefited the interest of all. This was a world of what economists call external economies, or at least of the absence of external diseconomies where one man benefiting himself harms the commonweal. Government intervention was only harmful because each man knew better than anyone else—much less a bureaucrat off in London—what he was good at producing and what he preferred in the way of consumption.

In *Metropolis 1985*, Vernon talks of the external economies that assure us that cities are going to continue to exist in the future. Activities that are highly variable, difficult to predict, and that involve negotiation and consultation benefit from the existence of specialists in other industries, notably finance, advertising, communications, law. To get them quickly, they must be nearby. Hence the city. But there are also the external diseconomies of the city: traffic, smog, dirt, slums, lack of space. The rush from these diseconomies into the suburbs and the country, of course, creates new problems, for when everyone seeks sunlight, grass and air simultaneously, they disappear. We are moving from the era of external economies to that where the

(Concluded on page 64)

An authority on international economics, Professor Kindleberger has held positions with the Federal Reserve Bank of New York, the Bank for International Settlements, the Board of Governors of the Federal Reserve System, and the U.S. Department of State. His books include *Foreign Trade and the National Economy*.



CAN MAN GUIDE SOCIAL CHANGE?

*One view shows that man can assume any cultural form
but another suggests that he can't transcend himself*

By **Bruce Mazlish**

Professor of History in the Department of Humanities, M.I.T.

Professor Mazlish has many interests within the scope of modern history and his writings have dealt with topics such as the relationship of science and theology, psychoanalysis and history, the impact of the space effort on society, and the political history of Europe and America. He holds three degrees from Columbia University and earlier taught at the University of Maine and at M.I.T. He returned to the Institute in 1956 after two years as Director of the American School in Madrid.

Next month The Review will continue this series of essays on the theme, "Outlook on Man's Future," with discussions of the pressures of a rising population and our need to develop new values in the visual arts.

The subject of man as his own limit to future social change is a large and majestic one. Because I am an historian, my natural impulse in looking at the future of man is to immerse myself in his past. Unlike Lot, however, who saw his wife turn to salt, or Orpheus, who lost his Eurydice by the backward look (and, if I were to indulge in psychology for a moment, I might comment that looks can kill), I believe that the recoil to the past both animates our previous existence and serves as a springboard from whence we can launch ourselves more securely and more distantly into the future. He who wishes to jump ahead needs to go back for a running start.

What do we see in the past that tells us something about man's capacity to change in the future? Starting back about 25 million years ago with a physical ancestor of man, we arrive at the earliest toolmaking creature—the agreed difference between man and primates—about two million years ago. Then, in a fascinating series of physical changes and advances in tools (linked together in an inseparable cause and effect relationship) large-brained, bipedal, deft-handed man evolved into being, living in permanent shelters and in permanent social relations (i.e., family and tribal groups). Also, during this development, sexual activity was year-round

(more or less a unique attribute of man), and controlled by social rules rather than by hormones.

Next, about 10,000 years ago, man gave up his two-million-year-old nature as a hunter and gatherer, and turned increasingly to the cultivation of his food. He became primarily a farmer, with all the moral, social, and psychological changes that that entailed. Finally, about 6,000 years ago, he entered into cities and civilization. It is at this point, only a short time ago, that man's own nature and his relations with his own kind rather than with the physical environment became the dominant factor in his future development, and thus also the major possible limit to his own social change.

With this brief hurtling through two million years of man's development, we have hopefully established a few facts. One, man's physical and psychological nature originally changed over time in strict conjunction with his tools. Two, in the recent period, physical changes are practically nonexistent, while the pace of psychological and social change has increased enormously; thus, tool changes are no longer in a cause-effect relation with physical but only with social changes. Three, the social and psychological factors in man seem increasingly to be the significant variables, determining the limits to his further change (though considered always in connection with his tools, now generally called machines). Modern man is, in short, primarily a social-cultural animal.

As a social-cultural animal, man seems able to take on all sorts of shapes. He is indeed protean in the true sense of that word. The anthropologists supply us with innumerable examples of man's different ways of satisfying hunger, sexual need, desire for ornamentation, and so forth. The conclusion is inescapable, and even trite: man is capable of almost any form of society and social rule imaginable. Given existing technology, just about every possible variant on social life has sprung up, more or less by what looks like accident, through the centuries of man's civilized life.

What then is our problem? Our problem arises, alas,

(Continued on page 56)



THE VANNEVAR BUSH BUILDING, dedicated October 1, will house the new Center for Materials Science and Engineering. The ceremonies are reported on page 71, and its uses will be further described in The Review next month.

Opened for Students

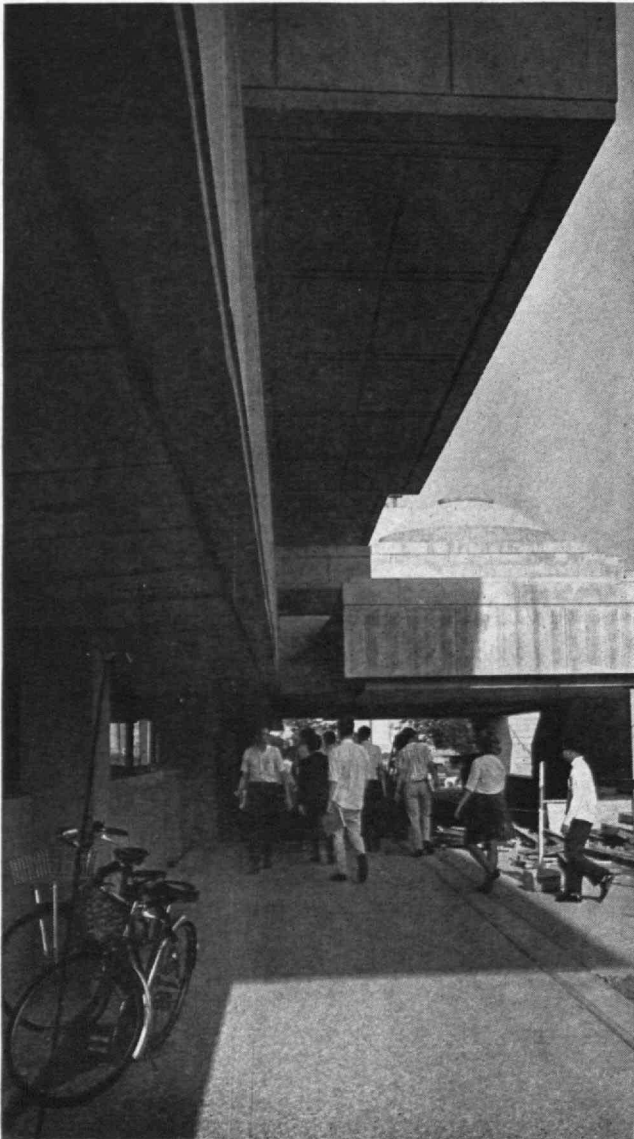
*An interdisciplinary center now bears Vannevar Bush's name
and a new center of student life that of Julius A. Stratton*



THE JULIUS ADAMS STRATTON BUILDING, dedicated October 9, houses student recreational, cultural, and social activities. Its history and features are reported on the next page by one of the students who planned it.

A Hub for Student Life —And How It Grew

By William H. Byrn, Jr., '66 | *Institute Committee President*



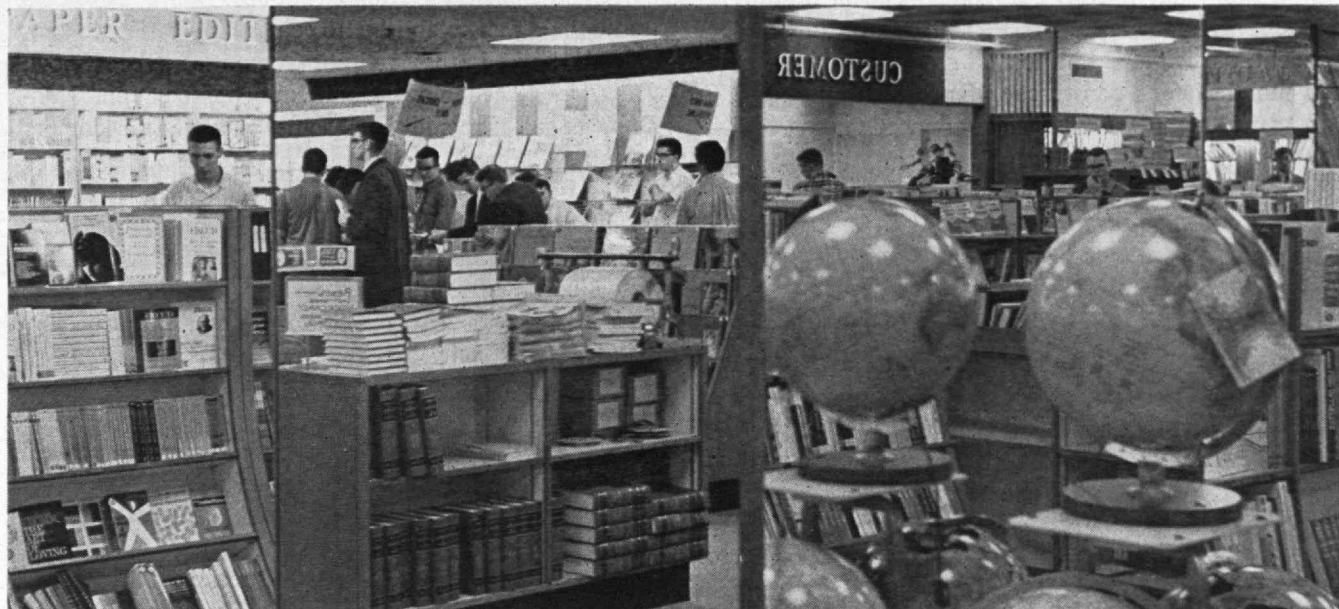
The Student Center was popular before it was finished, and makes M.I.T. more nearly a residential college.

At a gathering of students, alumni, Corporation, Faculty, and administration members last October 9, M.I.T. dedicated its new Student Center. The event marked the culmination of years of effort and more than a decade of community plans by those who recognized the need for an on-campus focal point for student recreational, cultural, and social activities.

At the same ceremony the structure was formally named the Julius Adams Stratton Building, a recognition accorded to Dr. Stratton by the Corporation partially in response to the expressed feeling of today's undergraduates. We the current undergraduates will be the first to appreciate thoroughly the benefits of the Center, and among the last to experience Dr. Stratton's personal concern for student welfare. The students' efforts toward bringing about this naming were in part an expression of appreciation for his particular role in the decision to begin construction. However, to some extent these efforts were a general response to Dr. Stratton's "abiding concern for the students of M.I.T." These words and feelings are now preserved with the dedicatory inscription in the main entrance of the building.

A few other buildings at M.I.T. may have involved several sectors of the Institute community directly in their planning, funding, construction, and operation efforts. But for several generations of students, for donors and Alumni present at the ceremony, for a number of Faculty and Dean's Office committees, and for the Corporation members, the completion of the Center was in a sense a personal accomplishment. In the years of planning, almost every interest in the community was heard, and every aspect of the community's need was studied.

The Baker Memorial Committee, a student group working in the spirit of the late Dean of Students Everett Moore Baker, chose in 1952 to investigate the Institute's need for a student union. Fifth-year architecture student Hsio Wen Shih, '53, devoted his bachelor's thesis to tentative proposals for a union.



The Tech Coop occupies the whole ground floor. Books and services can be found more quickly and easily now.

In May, 1953, the Institute Committee, prodded by the work of the Baker Committee, established a "temporary" Student Union Committee, that was instructed to assess the need for activity and commercial space and to speak with administration members.

During the following year, Martin Cohen, '54, another architecture major, produced a preliminary design for a student-alumni center. As his site Cohen chose the West Campus plaza, where construction of Kresge Auditorium and the Chapel was under way. Shortly thereafter work began on the David F. du Pont ['56] Athletic Center, situated on the north side of the plaza. It then became clear that the addition of club, commercial, and recreational facilities to the plaza would make the area truly a focus for student nonacademic life.

Subsequent Student Union Committees acted to publicize the need for new activity space. In 1955, Cohen's thesis was placed on display in Building 7, and a 40-page report on student union plans was sent to members of the M.I.T. Corporation. The Walker Memorial building, erected in 1916, had since been used as a gymnasium and as a space for bowling, activity offices, libraries, function rooms, a dining hall, quiz rooms, commuter lounges, and snack bars. It was seriously overworked and remote from the traffic center of student life.

In June, 1956, the Ryer report on the undergraduate environment at M.I.T. was submitted to the Corporation. The findings of the Ryer committee agreed to a startling degree with the claims of the Student Union Committee. Among other recommendations, the Ryer report urged the relocation of all dormitories in the West Campus area following a basic plan established by the postwar Carpenter report on campus development.

Shortly after the publication of the Ryer report, Dean of Students John T. Rule, '21, appointed a new Student Center Committee which included students, Faculty, and administration members. This committee, chaired by Associate Dean of Student Affairs Robert J. Holden,

produced a final report to the community after two years of study and work.

This 1958 report of the Holden committee has most directly affected the design, location, and contents of the recently completed Center.

Soon after the Holden report was submitted, M.I.T. appointed Eero Saarinen, architect of the M.I.T. Chapel and of Kresge Auditorium, to prepare a compatible design for a Center. Saarinen's earliest designs were unsuitable for several minor reasons and his death prevented completion of a second proposal.

Funding of the Center, which had been informally started by small donations from a few student groups, remained a serious obstacle.

In October, 1961, new momentum was given to the drive by a fire that destroyed the Hennessey Block, a small Institute-owned commercial facility on Massachusetts Avenue which had housed a drug store, cleaner, a barbershop, and WGBH, Boston's educational television station. The remains were razed, and the commercial services provided by the building's tenants were no longer available on campus.

During that year a decision was made to place the funding of the Center on the list of announced goals of the Second Century Fund, which was then in late planning stages. A few months after the fire, M.I.T. Professor Eduardo Catalano was engaged to provide a new building design and the West Campus plaza area was definitely marked as the Center site.

Many organizations and individual Alumni responded directly to the funding efforts, but the impetus for certain major sectors of the building was provided by gifts from the Alumni Fund, the Charles Hayden Foundation, and the M.I.T. Club of Puerto Rico. The Alumni Fund contribution was voted by the Fund's directors to honor the work of Harold E. Lobdell, '17, longtime Executive Vice-president of the Alumni Association and once Dean of Students.

On a sunny day in May of 1963, President Stratton, and Henry W. Bowman, '63, then Institute Committee President, participated in a formal groundbreaking, and a few months later a construction fence went up.

In March, 1964, the Institute announced that an additional floor—25,000 square feet of reading and study space—had been financed and would be incorporated into the plans and contract. The building exterior and foundations had been designed to allow a fifth floor to be added without disturbing its appearance or integrity.

Perhaps a catalog of the features and facilities of the Center will help explain the undergraduates' current enthusiasm and our energetic and almost immediate recognition of the new opportunities for meetings and programs.

The Center is an all-concrete, rectangular building. The angularity of the overhanging upper floors contrasts sharply with the curves of nearby Kresge Auditorium and the Chapel. M.I.T.'s own engineering skills produced the foundation design.

The basement includes storage space for the dining service and the bookstore, and a small number of very useful commercial facilities: Charlie-the-Tech Tailor, a U.S. Post Office substation, and an eight-chair barber-shop. Six billiard tables and eight lanes for tenpin bowling form a recreational section in the basement. An office of the M.I.T. Bursar is maintained to provide student banking and check-cashing facilities.

The ground floor is devoted entirely to the Tech Coop, which now has more than four times the selling space previously available. Entirely new lines in men's and women's clothing, gifts, and household goods have been added. Fifteen thousand titles of books, paperbacks, and technical magazines are displayed; the book, magazine, and records' area of the store occupies almost half of the floor. A small shop in the lobby, also operated by the Tech Coop, has liberal hours designed to cope with students' 24-hour demand for such necessities as school supplies, snacks, and tobacco.

The next, or main floor, contains two large function rooms. At the east end of the floor is the 350-seat H. E. Lobdell [17] Dining Room, where cafeteria-style meals are served seven days a week.

At the west end of the floor is the Sala de Puerto Rico, a large multi-purpose room that is extensively used. About 600 persons can be accommodated in the Sala for a movie, play or lecture, about 250 couples for a dance, or 400 at a luncheon or banquet.

Two lounge areas, a small reading room, and serving areas and coatrooms are also located on the main floor.

Just above the main floor is the mezzanine, which includes a 90-seat snack bar and a bridge and chess game room. Three small dining rooms for meetings and group events, and an elaborately furnished 200-person lounge are also on the mezzanine.

It is on the fourth level, the so-called activities floor, that the most dramatic changes in undergraduate life are evident. Almost 40,000 square feet is allocated to offices, darkrooms, and meeting rooms for student ac-

tivity and student government groups. Nearly all of the traditional, well-established Tech institutions are comfortably housed: the Institute Committee, Tech Show, *The Tech*, Technology Community Association, *Voodoo*, et al. In addition, some relative newcomers have new offices: the literary magazine *Tangent*, the Social Service Committee, Dramashop. Five sound-proofed music practice rooms are equipped with pianos, and a fully equipped art center offers instruction for individuals with an interest in the graphic arts. The floor is in constant use and promises to have a profound effect on the quality of student programs, as well as on the members' *esprit de corps*.

The top floor is a vast reading room, currently housing 15,000 books. Designed as a study area, the room accommodates 480 students and is in 24-hour operation seven days a week.

What will the building do for undergraduates? How will this facility, which cost \$4.6 million and provides 175,000 square feet of floor area, affect community and campus life? How far along the road to a residential college community will it take us?

Only through my experience last year on the Student Center Committee and my involvement this fall in the scheduling of Center facilities can I attempt to foresee how the building will affect student life. In 1955, when Kresge Auditorium was dedicated, few could have described accurately the vast expansion of student musical and dramatic activities that now crowd the schedule of that facility.

Perhaps a similar expansion of student activities in directions not yet evident will be fostered by the Center. During my brief experience as an undergraduate, two major new undergraduate interests in nonacademic areas have appeared. The first is the well-publicized involvement of today's student in civic, political, and social problems of the community. Even at M.I.T. the "study now—change the world later" philosophy of rational idealists has been displaced by a new breed of community workers. The second appears in a concern for quality in extracurricular undertakings such as music and dramatics.

Apart from such speculations, we the undergraduates can see how well the structure is fulfilling the criteria established for a Student Center.

Student organizations and activities have rapidly adjusted to the expanded facilities provided by the Center Committee and my involvement this fall in the heavily scheduled. The full effect of this building on the traffic patterns and recreation programs of the students may be realized even in a few terms of use, as new ideas and interests are spawned.

In the future, construction of more dormitories for both graduates and undergraduates, the completion of the new boathouse on the Charles River, and new landscaping may alter the face of the West Campus, as efforts toward a residential, university campus continue. But no matter what is done in these directions, the Stratton Building will remain a major influence in the environment of our undergraduates.

THE TREND OF AFFAIRS

The New Curriculum

The members of the M.I.T. Class of 1969 embarked this fall on an educational program radically different from that which previous students encountered. Most of them will have had as much science and mathematics before they are graduated as their predecessors did, but "core" requirements for the freshman and sophomore years have been reduced to give this year's freshmen more flexibility in planning their studies.

Previously all students, whether they intended to concentrate in science, engineering, humanities, social science, or architecture, were required to take the same core courses in physics and mathematics during their first two years as well as at least one humanities course every term through four years. All but the architecture students also were required to take chemistry through the first year.

"Freshmen had to dive into this program on a sink-or-swim basis," says Professor Ascher H. Shapiro, '38, chairman of the Faculty and of the Committee on Educational Policy. "Most of them did indeed swim because they were bright students who had been carefully selected and because they got a good deal of help from Faculty and upperclassmen. But however well qualified they are for entrance into M.I.T., freshmen vary in their interests and in the preparation they have had. The new program seeks to make allowances for such differences—to provide more choice in studies, to enable students to take more humanities, to give freshmen more help, and, as never before, to recognize the background of each individual and provide the kind of constructive relationship with professors that he needs. We have no intention of making our standards lower. Rather, we are encouraging intellectual initiative and providing the opportunity for higher aspiration in scholarship."

The revised curriculum resulted from what President Julius A. Stratton, '23, called "the most penetrating study in the history of undergraduate education at the Institute." It reduced the core requirements to one year of physics, one year of mathematics, and one semester of chemistry for this year's freshmen. Most of them will have to spend as much time on their work as any group of beginners ever did, but some who have had unusually good high school preparation were permitted to enroll for advanced subjects, and others not as well prepared to have less than the normal load at the outset. Continued flexibility will be possible in this group's sophomore year, and Faculty members expect to have further changes in the curriculum ready by the time the Class of 1969 reaches its third and fourth years.

As in the past, by the end of his sophomore year each student will select a department in which he will concentrate, and each department at M.I.T. has regulations about courses that must be taken. Even here, however, there has been relaxation of the require-



Entering freshmen explore the campus and a new curriculum.

ments. In fact, one of the provisions of the new program is that a student may obtain a bachelor of science degree without specification. In the past, every student graduating from M.I.T. was the product of specialization in one of a score of specific areas. The student who qualifies for an undesignated degree will be associated with one department but will be permitted to take an inter-disciplinary approach to the subject in which he is interested.

The new physics course is no less difficult than the old one. In fact, students who have not had a strong physics course in high school are likely to find it more difficult. But the professors believe it is more exciting and presents a more coherent view of nature. And if a freshman's high school education has not prepared him to cope confidently with the course, he can take tutorial work or delay the plunge into it until the second semester, after he has gotten freshman chemistry out of the way and has learned enough calculus in freshman mathematics to deal with physics. An optional diagnostic test in physics helps determine whether a freshman is ready for the new course.

Laboratory work is no longer a part of freshman physics, but no student will graduate from M.I.T. without substantial laboratory experience—at the very minimum one of 24 special laboratory courses. These courses are in "project" laboratories, where students undertake independent experiments, in which the results are not known in advance, rather than the traditional experiments in which the students are required to get the same results that generations of students before them have found.

The required one-semester course in chemistry is entirely new. It recognizes the fact that students entering M.I.T. are increasingly well prepared in chemistry, and it includes a rigorous introduction to chemical thermodynamics. The course was developed by Associate Professor William R. Moore and given in pilot form to 50 students last year. He also developed a new second-semester course which many students will take even though it is not required.

(See "Seven Influences on Education," page 34.)

Seven Influences on Education

The curriculum now available to M.I.T. freshmen was planned by a Committee on Curricular Content Planning appointed by President Stratton in 1962. Its chairman was Professor Jerrold R. Zacharias and its nine members spent the best part of two years studying the M.I.T. system, examining the goals and needs of higher education, reading textbooks, and interviewing students, representatives of other universities, scientists, engineers, and industrialists.

The Zacharias committee's report was turned over to the Faculty Committee on Educational Policy, the ex-officio chairman of which was Professor Harold S. Mickley, '46, then chairman of the Faculty and now Director of the Center for Advanced Engineering Study. This committee, of which Professor Ascher H. Shapiro, '38, then was a member, spent most of its time during two years in studying the report and drafting specific recommendations to the Faculty. Members of the Faculty then spent several months in studying the reports of both committees and debating the issues before the changes were adopted.

In its final report the Committee on Educational Policy recognized seven "influences" which led to the need of a reappraisal of the M.I.T. undergraduate program:

1. The improvement in high school teaching of science and mathematics, which has resulted in freshmen capable of more advanced studies.
2. The fact that M.I.T. is attracting the same kind of talented and well-prepared high school graduates that other foremost universities are attracting.
3. The increasing complexity of science, the emphasis on applied science in engineering, and the increasing need for graduate study.
4. The need for teaching students how to continue to teach themselves after graduation.
5. The growing need for creative people in science and engineering as well as in humanities, social sciences, and business.
6. The "increasingly serious problem of the underprivileged nations. Historically, our graduates have participated in the evolution of contemporary Western civilization. In the future, increasing numbers of them

will be called upon to bring the benefits of this evolution to the newly developing nations . . . Instead of trying to put the less developed nations on accelerated plans patterned after the industrial history of the United States, it may be that very new and different methods must be invented for them. If our M.I.T. graduates are to make effective contributions in this endeavor, they must be willing actively to bear heavy social responsibility."

7. "The increasing dependence of government on technical advisers . . . We should set ourselves the goal of producing technologists who understand political problems, as well as developing ways to give elected officials a better grasp of technology and of the way technologists think."

From Many Lands

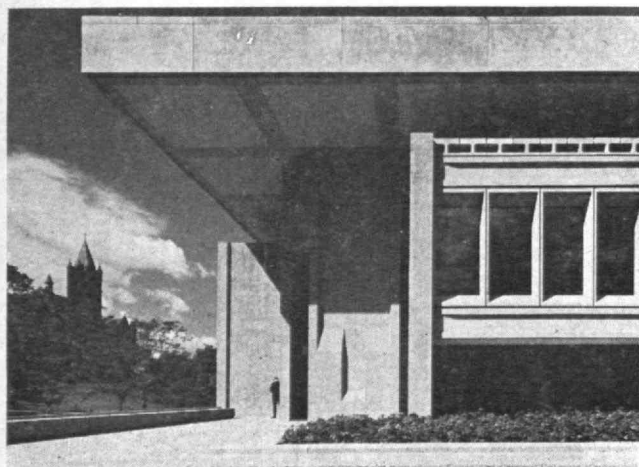
This year's 961 M.I.T. freshmen came from every state, except North Dakota, and 47 foreign countries. They represented 617 public high schools and 104 independent or church-related schools, and at least 776 of them had been in the top tenth of their classes. Seventy came with National Merit Scholarships, and 557 will receive financial aid totaling \$700,000 during this academic year.

During their first four days on campus, they toured laboratories, saw demonstrations, and had a choice of 62 discussion groups to join. These dealt with subjects ranging from "Some Problems of Microbial Genetics" to "Utopia" and "The Coming World Civilization." Some such groups met in fraternity houses; at Sigma Chi, for example, the subject was "Space Propulsion and Power Generation."

These discussion groups were arranged to give freshmen an idea of the broad range of intellectual opportunities at M.I.T. and to stimulate their interests in challenging areas. Many pointed the way to elective courses that the freshmen might take.

The freshmen were welcomed also by President Julius A. Stratton, '23, who urged them to take advantage of "the almost infinite array" of subjects now available. (The full text of Dr. Stratton's address will be found on pages 36 and 37.)

(Continued on page 62)



I. M. Pei ['40] & Associates this year shared a First Honor Award of the American Institute of Architects for journalism building, left, at Syracuse University. Another award went to Reid [John Lyon Reid, '31] & Taries for chapel designed by Robert Olwell, '40, for California boys' school.



[N]OTABLE NEW BOOKS

Excerpts from New Books

Investment and Investigation

Nowhere in Europe have American investors provoked more reaction, or encountered a cooler reception, than in France. The latest move in what often appears to be a campaign against foreign investors appeared in the form of a report issued by the Patronat, France's influential association of manufacturers. Their report, comparing French companies to the largest American and British firms, ranks the largest French company only fifty-seventh in the listing, based upon annual sales. Ten French companies—as against 114 American—were shown to have a yearly turnover of more than \$500 million. The inferences and conclusions are clear to the reader and seem intended solely to rally new support for the contention that French business needs protection from United States competition.

. . . United States direct investment in France seems relatively small, tending to undermine the French allegation that U.S. capital has a dominant position in the economy. France . . . ranks next to last among Common Market countries in U.S. direct investment per capita. It accounts for less than 28 per cent of all U.S. investments in the Common Market and only 11 per cent of aggregate U.S. investments in Europe. United States companies produce less than 2 per cent of the French gross national product. The charge that there is a heavy concentration of United States capital in specific industries is amply borne out by the facts, on the other hand. Whether these industries are critical to the French economy is a matter of opinion.

The gravamen of the French complaint—that U.S. companies exercise undue control of their subsidiaries—received decided confirmation from the survey. In a significant number of companies, on policy matters touching upon activities vital to the French economy, there was little delegation of authority to subsidiary management. Respondents agreed unanimously that the paramount function of control is to relate the financial investment in the French plant to the ultimate size and potential of French operations, but most of them admitted that control served other purposes, e.g., to co-ordinate production among several European plants. The centralization of the decision-making process in the United States appears to be particularly objectionable in view of the offhand manner in which decisions of great consequence abroad are frequently made. . . .

The survey disclosed virtually no evidence of discrimination or harassment by French authorities, once a company had been admitted into France. There was a preponderance of opinion that a foreign company should do everything possible to identify its venture with the purposes of the host country.

—From **UNITED STATES DIRECT INVESTMENT IN FRANCE: AN INVESTIGATION OF THE FRENCH CHARGES**, by Allan W. Johnstone [’64] (*The M.I.T. Press*, \$4.00). By permission of *The M.I.T. Press*. © 1965 the Massachusetts Institute of Technology.

Simplicity Works Best

Just as the mature design of the airplane is a thing of beauty and external simplicity, resembling the natural form of birds, so also architectural designs, which are both simple and effective, have an innate beauty. How simple were the old Spanish colonial architecture and structural design, and how much they are still appreciated in our time! Arches, vaults, and buttresses may be seen and understood by students who are not yet fully acquainted with statics because they can visualize the line of action of the forces involved. Even laymen, without technical knowledge but with common sense, see in such structures explicitly the natural action of gravity, and it is this appreciation which makes the design seem beautiful. Modern designs of thin shells, made possible by newer materials and by the more complete awareness of the forces involved, demonstrate again that simplicity is the best tool of design. However, there are also structures which conceal the action of gravity forces by employing hidden members to gain strength and stability, and this disguise seems untruthful to the expert and inexplicable to the layman.

—From “The Engineering of Large Structures,” by Leonardo Zeevaert [’40] in **THE WORLD OF ENGINEERING**, by John R. Whinnery (*McGraw-Hill*, \$3.95).

Laws Are Not a Panacea

“There ought to be a law against it.” The American Dream, that special optimism which marks Americans off from other people, nowhere expresses itself better than in the belief that every new social disorder can be remedied by adding another statute to the books. Legislation, in that view, moves directly and by simple steps. The public sees that something is wrong. It protests, and its representatives dutifully pass a law. The

(Continued on page 52)

Some Thoughts for Freshmen

The following is the text of remarks by President Julius A. Stratton, '23, at the Freshman Convocation on September 15 in Kresge Auditorium.

You are meeting here this afternoon for the first time as the M.I.T. Class of 1969. For each of you this is a supremely important occasion, one to which you have been looking forward for many months. It marks the beginning of a wholly new experience—an experience that you and we, working together, are going to make constructive and rewarding.

These next few days will be filled with all the activities of Freshman Weekend—registration, moving into your dormitories and fraternities, meeting new friends, talking with Faculty advisers, finding your way about the campus. But then next week you will begin to settle down. You will attend your first classes. You will discover the tempo and scale of our life here. And, most important of all, you will begin to be a part of M.I.T. Let me say at the outset that your place here will not be that of a freshman isolated with other undergraduates in a distinct, separate college. Rather, you will join with the graduate students, the postdoctoral scholars, and the Faculty—with people from every part of the country and from all over the world—to make up this single, tremendously interesting academic community and to live and work in a shared environment of scholarship and learning.

Other generations of freshmen have come here before you. For a century, in the particular context of their own time, these other freshmen have encountered problems and experienced feelings quite similar to yours. They have met and conquered—just as you will—the pressures, the passing moments of uncertainty and discouragement. They have seen the four years—that appeared endless at the outset—slip by with incredible speed. And they have known, just as you will, the immense satisfaction and pride of success and achievement at the end.

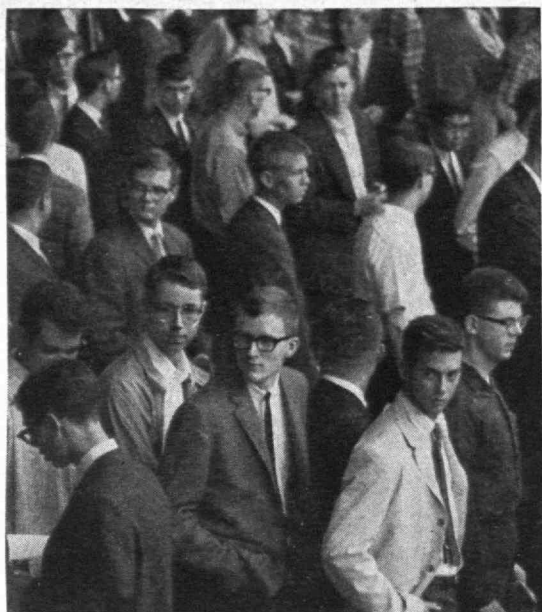
You have studied very hard for the privilege of entering this institution, and I am certain that you have already given much thought both to your own goals and to your expectations of us. But today I ask that you take a broader view, that you look beyond the specific profession you hope to follow—whether it be some field of engineering or science, architecture, economics, political science, or management. Look beyond the facts that you hope to add to your store of knowledge and the schedule of classes that you

must faithfully pursue. Consider in this new setting the deeper meaning and the implications of the years just ahead.

First of all, as you make the transition to M.I.T., you must begin to accept a new order of personal responsibility. To my mind, in this higher degree of responsibility lies the fundamental difference between secondary school and the idea of a university—a difference that is frequently misinterpreted, if perceived at all. At the moment you may think of the next four years as a prolongation—a kind of stretching out—of your high school days. Yet, rightly understood, they should be very much more. For the nature of the educational process is not at all the same. True, you will recognize some of the familiar routine. There are required courses; there will be term papers, deadlines, exams, and grades. But a university offers you resources for learning beyond anything that you have known before. And the responsibility for the use that you make of these resources, the effectiveness with which you draw upon their multitudes, shifts today from the teacher to you. You enter now into a mature domain in which the choices basic to your success or failure will be largely your own. Henceforth, you must assume a new measure of accountability for your own efforts and achievement and for the decisions that you must make on your own behalf.

This is not to say that you set out on this venture this afternoon alone. I can assure you with the utmost sincerity that you will find a Faculty that truly cares about your welfare and your progress and that is eager to guide you on your way. As I look back over the long years of my own experience at M.I.T. as a student and teacher, it seems to me that there has never been a time marked by a deeper or more active concern for the undergraduate, his problems, and for the substance of his education.

You will find also that the vast resources of M.I.T. are those of a dynamic institution responding to the demands and the issues of our age. You need only take the General Catalogue in your hands to have proof of the extraordinary range of opportunities that awaits you. There is freedom, if you exercise it, to shape and modify your course as you proceed. Many of you, in fact, finally settle upon a career quite different from the one you have in mind today. This very real flexibility of which I speak is evident in the core curriculum, in the freshman seminars, and in the electives. You will find it in the chance to work in laboratories, and later to participate in research. I urge you, once you



stand on solid ground, to avail yourselves of this almost infinite array of possibilities. These are indeed the years to explore new fields of learning, and your acceptance for this entering class is in effect an invitation to do so.

But it is not a mandate to roam at random and without focus. That would be contrary to the spirit of M.I.T. My charge to you is to seek with an open mind but in a purposeful way, to reaffirm an interest, or perhaps to discover a new one, to make it your own, and gradually to form your commitment. In doing so, you will develop your own style, and you will begin to design a way of life. You will work with us thoroughly and in depth, laying the foundation of a profession and creating a solid core of competence on which to build through all the years to come.

All the years to come—in this phrase is the key to the real significance of your stay with us. The very fact that you have sought admission to this particular institution makes it almost unnecessary for me to point out the fundamental role of science and engineering in our time. Yet I want to emphasize that, as their influence has deepened, pervading every aspect of human affairs, it has brought new meanings and new dimensions not only to life but, in turn, to the whole of education.

The salient quality of contemporary society is its dynamic, fluid character. Today the conditions of life are profoundly different from those of a generation ago, and in all likelihood they bear very little resemblance to those that will govern your lives as professional men and women 10 or 25 years from now. Day by day we make new discoveries and solve problems, only to come upon another frontier, other possibilities, whole new areas of inquiry. We can only

speculate and surmise about what lies just over the horizon. But we can be quite certain that change will continue and will accelerate.

And so we shall hope to give you much more than the solid command of principles and facts without which there can be no mastery of a subject. Equally important, and even more lasting, will be the attitudes that you acquire, the perspective that you gain, a sense of history, an understanding of the nature of our society and of the forces that are shaping it. You will need a receptive mind; a willingness to expand your professional interests; the capacity to move with ease outside the area of your particular specialization; the confidence to draw upon and use with wisdom whatever may be new. To live and work fruitfully in this rapidly evolving, increasingly complex world, you must develop the power and the ability to keep pace, to renew your knowledge. The true aim of education is to provide you with the inner intellectual and spiritual fiber to adapt—in sum, to teach you how to learn and how to think. Such, briefly, are the objectives that have molded our philosophy.

As you begin these four productive years, I can predict that your life—even as ours—will be intense, at times, difficult. We shall make seemingly infinite demands upon your capacity to learn, and we shall set seemingly unattainable standards for your achievement. This is no place for idle minds or hands. You will probably work harder than you have ever worked before; yet never will you make a better investment of time and thought and energy.

Of course it won't all be study. You will participate in sports, in the varied activities, in student government. As individuals, and as members of our fraternities and dormitories, each of you in your own way can contribute constructively to the community to which you now belong. For all this, too, is an important part of education.

One day some of you will be graduate students here; some will be members of our Faculty; a few may be members of our Corporation, which is our board of trustees. But all of you will be Alumni, and all of you will continue to be very much a part of M.I.T. Be proud of it, identify yourself with its welfare and progress as you do with your own. Taken as a whole, perhaps there is nothing quite like it anywhere in the world. For all of those who make it so, and for myself, I welcome you most warmly. I hope that I may come to know many of you personally, and I wish you well as you begin this year.

Don't plant the seeds of future high maintenance costs when you bury your

URD cable!

When your cable goes down in the ground, your maintenance costs may be headed drastically up—unless you *know* the cables are in to stay.

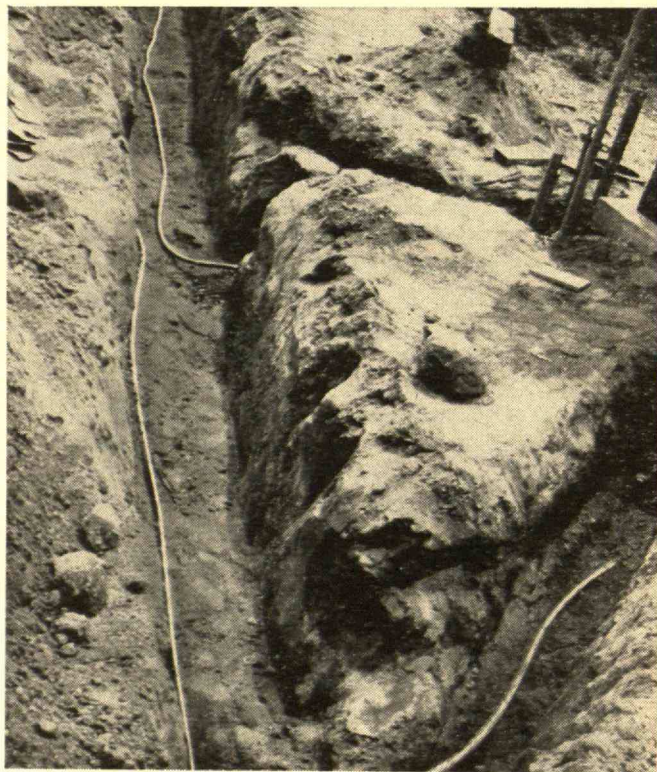
But you cannot know for sure unless you bury cables with insulation *proved* to last a lifetime, and of up-to-date design based on sound and progressive engineering practice.

Initial "savings" on cables that are *less than thoroughly proved* turn into a bumper crop of extra cost if you have to dig up the cables in seven to seventeen years.

Ask if the "savings" offered will cover maintenance and replacement cost (allowing for labor costs at tomorrow's probable rates!) Will they pay for replacing lawns, and trees and shrubs, grown in size and value? *Can* it pay you enough to offset the effects of customer attitudes soured by needless digging?

No one can afford to use a URD installation as a cable-testing laboratory. Nor does he have to. There are Kerite URD cables existing *now* that have been proved in operation over many voltage ranges, in every kind of underground environment. No URD cable you can buy today is more thoroughly proved, more *modern* than Kerite.

The Kerite Company, 30 Church St., New York 7, N. Y.



Kerite

the cable that lasts... and lasts... and lasts

New Paths in Education

Alumni officers returned to the campus on September 10 to participate in two days of briefings and panel discussions on M.I.T.'s academic and nonacademic goals and to review ways in which graduates can help the Institute attain its objectives. Attendance at the conference, the sixth of its kind, exceeded that of previous years and more than 400 alumni leaders, representing classes from 1896 to 1967, came from 28 states, the District of Columbia, two Canadian provinces, and Mexico and Venezuela. General sessions were in Kresge Auditorium, and a dinner meeting was held in the Student Center, the first such function there.

At the dinner, *James R. Killian, Jr.*, '26, Chairman of the Corporation, outlined the broad role of educational responsibility to which the Institute is committed. At M.I.T., said Dr. Killian, "There is no flight from teaching at the undergraduate level. The quality of teaching has never been so invigorating as it is today."

The opening remarks at the general sessions, moderated by *Francis M. Mead*, '29, chairman of the Conference, were made by President *Julius A. Stratton*, '23. He enumerated the factors he believes will be significant to the Institute's future course. Among them: proliferating research activities; increased emphasis on post-doctoral work; attitudes influenced by the increasing number of married students on campus; and, the reshaping of traditional departmental boundaries.

While academic factors remained at the forefront of the discussions, nonacademic considerations were not neglected. But Vice-president *James McCormack*, '37, remarked, "There is no gulf, no division between the academic and the non-academic life."

Frederick G. Fassett, Jr., Dean of Residence, pointed out that nonaca-

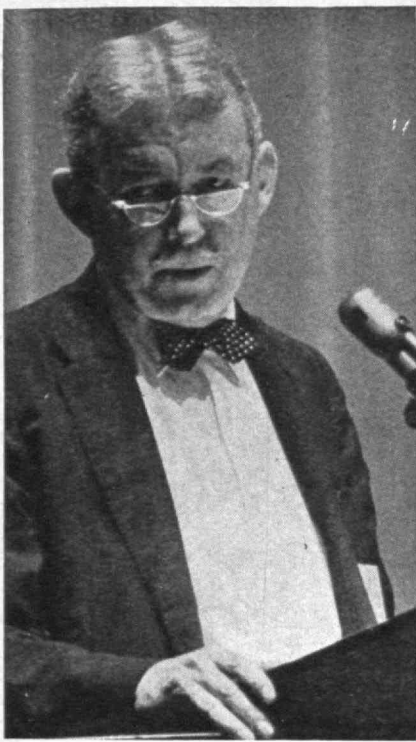


Alumni met for dinner in the Sala de Puerto Rico in the new Student Center.

demie factors "have weight and influence throughout student life." For one thing, he said, most students want to practice outside of class what they have absorbed in the lecture hall and laboratory. As an example, Dean Fassett noted that a group of students this year computerized fraternity rushing schedules for the first time. Other panelists reporting on nonacademic activities were *Ross H. Smith*, Director of Athletics, who reviewed highlights of extracurricular programs; *E. Lee Gamble*, '30, Master of Baker House, who discussed the house master system; and *Jack H. Frailey*, '44, Director of Stu-

dent Aid, who gave details on increasing needs for scholarships.

In discussing the role of research at the Institute, *Carl F. Floe*, '35, Vice-president, Research Administration, noted that projects result from Faculty demand and are not handed down to the teachers from above. This emphasis, he added, "creates a climate in which they can pursue their own goals." *Roland B. Greeley*, Director of Admissions, reported that for some prospective students M.I.T.'s reputation for academic excellence is formidable indeed. He suggested that it may be advisable to contact parents and



Alumni heard Dean Fasset discuss non-academic affairs . . .

school advisers in order "to soften the raw and terrifying impact" that the thought of coming to the Institute may have on some candidates for admission.

George E. Valley, '35, Undergraduate Planning Professor, reported curriculum changes that will give new students earlier elective opportunities in the areas of science and engineering. This is being accomplished by reducing core requirements in physics, mathematics, and chemistry. Work at the Institute will be no less rigorous, he added, but a student will have more flexibility in planning his studies.

The changing face of education will doubtless result in changing attitudes among today's students and tomorrow's alumni, according to Donald P. Severance, '38, Executive Vice-president of the Alumni Association. His discussion of "The Basis for an Alumni Program" was followed by a report from John A. Lunn, '17, head of a new long-range planning committee, who said that a number of sub-committees have been named to study various aspects of future alumni requirements and services.

Later that day, a panel discussion was devoted to means by which Alumni can help M.I.T. achieve its aims more effectively. Participating

were: William H. McTigue, '54, Executive Secretary of the Educational Council; Fred G. Lehmann, '51, Secretary of the Alumni Association; William T. Struble, Managing Editor of *The Technology Review*; Kenneth S. Brock, '48, and Douglas F. G. Haven, '52, Associate Directors of the Alumni Fund; and T. Guy Spencer, '56, Assistant Director of the Alumni Fund.

The second day's general session was a discussion of "Missions of the Future" by the deans of the Institute's schools. Gordon S. Brown, '31, Dean of the School of Engineering, drew a "spectrum of human endeavor" involved in science and



. . . and heard John A. Lunn, '17, talk on long-range planning . . .

technology, and outlined four groups of participants: *composers*, those who deal fluently with abstractions and who can mentally create new processes and situations; *arrangers*, those who deal with established principles to make things work; *custodians*, those who understand technology and keep complex machines operating; and *interpreters*, those who work at the "interfaces" of science and technology.

Jerome B. Wiesner, Dean of the School of Science, discussed new areas of science now proliferating at the Institute and pointed out that such activity puts new emphasis on

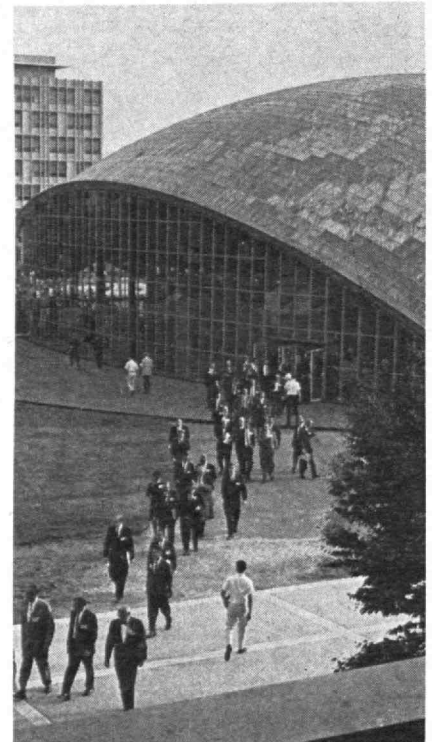
the interdepartmental laboratories.

Deans Lawrence B. Anderson, '30, of the School of Architecture and Planning, Howard W. Johnson, of the Alfred P. Sloan School of Management, and Robert L. Bishop, of the School of Humanities and Social Science, discussed their schools' current activities and projected plans.

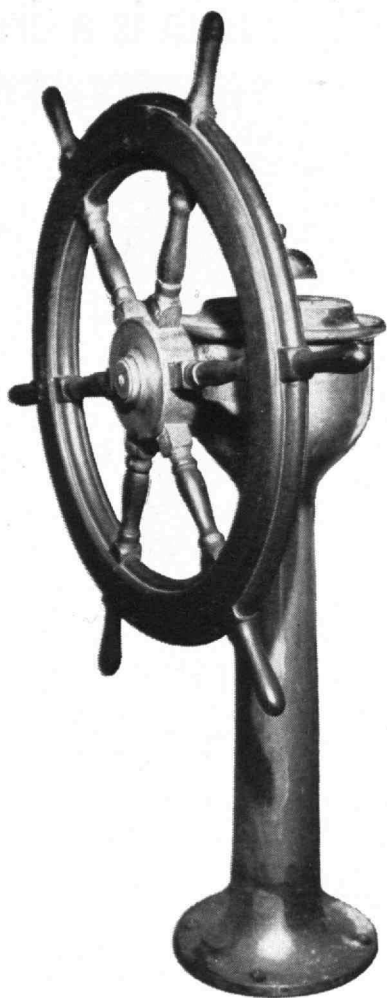
On this futuristic note the group adjourned for the luncheon that brought the conference to its end. There, the presiding officer, Samuel A. Groves, '34, President of the Alumni Association, summed up by saying that the rear-view mirrors of nostalgia traditionally thrust at alumni groups won't do for M.I.T. graduates. "Those at the forefront of the education explosion brook no look backward," he said.

And Vannevar Bush, '16, Honorary Chairman of the Corporation, made a comment on the purpose of the conference:

"We are motivated by our instincts," he said. "But if we believe in free will, as nearly all of us do, even those who most vigorously deny it, we modify the primary instincts by reason and judgment. We choose. And the reason we work together is because we have chosen a common objective, namely to render M.I.T. a more effective instrument for its great purpose."



. . . then toured the campus to note the many recent changes.



How to keep your investment program on course.

No investor can afford to fall behind on his decision-making.

If you are more and more preoccupied with business or professional responsibilities, let an Investment Management Account at State Street Bank give you a hand with many of the decisions—and all of the details.

Our senior officers and directors, by virtue of their broad business contacts, contribute a close familiarity with economic trends. Our investment analysts have access to a wealth of facts, and they're equipped by skill and training to sort the meaningful from the insignificant.

We apply the results on an individual

basis. Our recommendations reflect our understanding of your own goals, your own circumstances. The final say-so is yours.

Let us help you keep your investment program on course through the years ahead.

Call on the Personal Trust Division.
Telephone 466-3721.

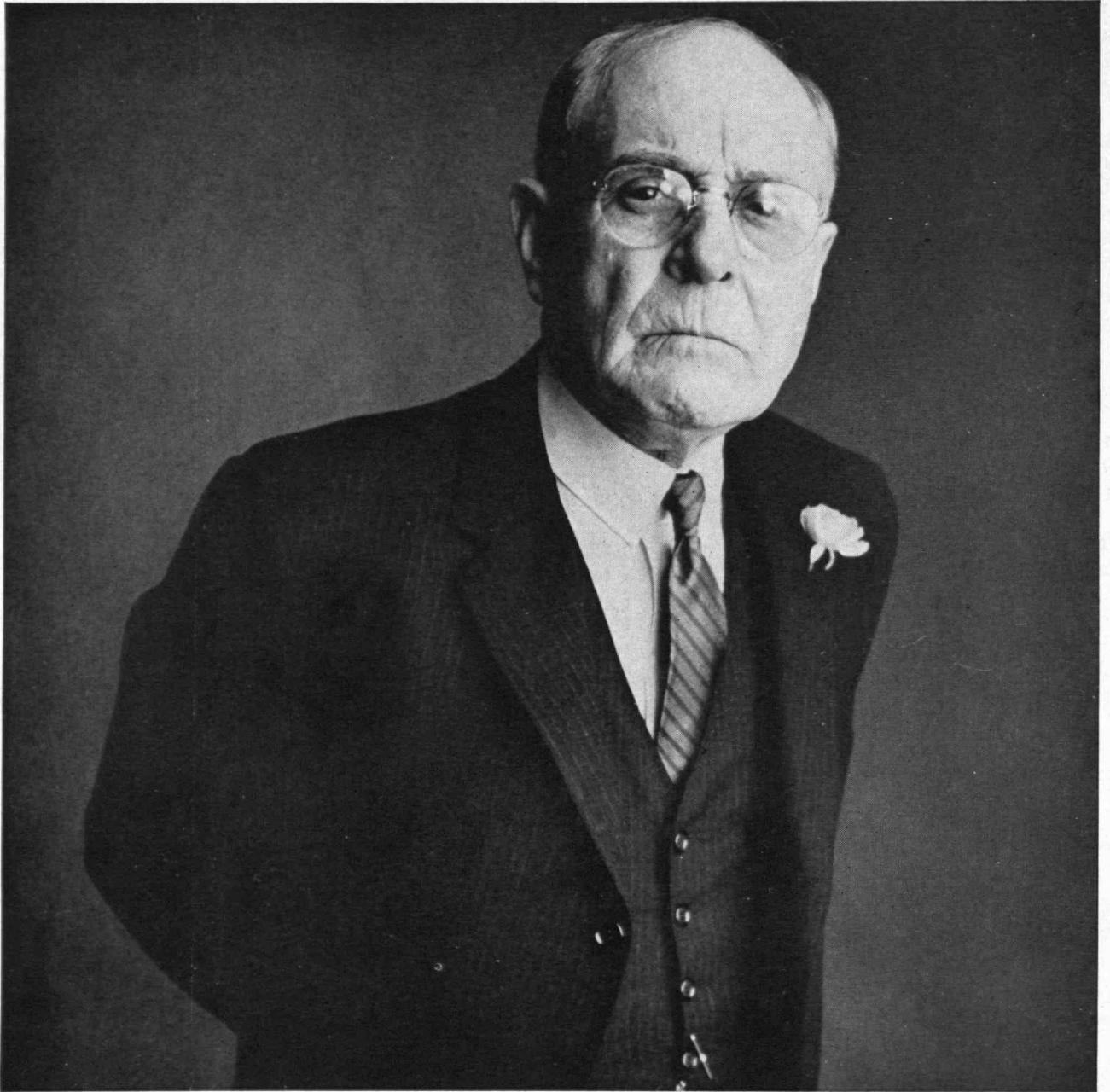


PERSONAL TRUST DIVISION

State Street Office: Cor. State & Congress Sts.

STATE STREET BANK
AND TRUST COMPANY
BOSTON, MASS.

This man is a dreadful lawyer



In fact, he's no lawyer at all. But that didn't stop him from writing his own Will. (Why not save the legal fees? thought he.)

The cost will be enormous.

For example — when he dies, his estate will dwindle under taxes that a well-drawn Will can avoid. Aunt Effie and her sister will squabble in court over the Steinway he forgot to mention.

Worse — a good part of what's left after taxes, claims and settlement costs may well end up in the wrong hands (that awful cousin in the advertising business, for instance).

Lots of people are in this boat. And it's a constant source of amazement to us.

For it is so easy (and in the long run so inexpensive) to have your Will drawn by a lawyer — a man who has the experience and the training to do it right... and it's so expensive, so wasteful, so downright unfair to your heirs *not* to!

We hope this will remind you to see your lawyer about your will (if you haven't already) and to keep it up to date. If you think there might be a place for us in the picture — as executor or trustee — won't you call on us?

THE FIRST & OLD COLONY

The First National Bank of Boston and Old Colony Trust Company

"Toward a Complete Educational Experience" is theme chosen by Fund leaders for this year's aid to M.I.T.

Alumni Goal Is \$2,000,000

By Philip H. Peters, '37 | *Chairman of the M.I.T. Alumni Fund Board*

For many years educator and alumnus alike have grown increasingly aware that private education, as we know it at M.I.T., more and more needs the support of thousands of individual benefactors, each giving according to his means. Colleges are in growing competition for the multimillion dollar gift, and by and large such grants are becoming more difficult to obtain. In view of this trend, we should all be proud that M.I.T. Alumni have so loyally demonstrated their realization of the Institute's financial needs. Under the leadership of my predecessor, D. Reid Weedon, Jr., '41, our Alumni Fund has grown from \$460,294 in 1963 to a total of \$968,880 in 1964 and the magnificent sum of \$1,592,244 for the Fund year concluded June 30, 1965.

This year, your Alumni Board has selected the theme "Toward a *Complete* Educational Experience" as one that explains the true goals of our Fund. Our Alumni Fund has played an historic role of aid to student environment. It has done this through its support of housing, student aid, and other activities. The Fund has concentrated in these areas because they are vital to the development of young men and women, and in general, our Alumni enthusiastically support this emphasis.

Despite the new Student Center, the contrast between classroom and nonacademic facility at the Institute is still great. This year, M.I.T. dedicates new centers for the material sciences, the life sciences, and the social sciences. Last year, the Center for Earth Sciences became a reality and, even now, construction of two separate centers is planned for



An alumni contribution: the H. E. Lobdell, '17, Dining Room in the Student Center.

advanced engineering study and for the space sciences. (See photos on pages 28 and 29.)

The student who uses these impressive academic facilities finds that M.I.T. otherwise presents a less rosy picture. Some of the Institute's dormitories are inadequate, overcrowded and far from conducive to

a productive social and study climate. Fraternities, home to a thousand undergraduates, are beset with problems of aging property, increasing taxes, and the changing scene in the Back Bay area where 23 of the 28 chapters are located. While the Student Center is a magnificent building, it also needs much addi-

tional equipment to fulfill its promise.

As we all know, educational costs continue to rise and tuition expenses are hardly modest. This raises two principal questions: "How many students should have an M.I.T. education and could, as a result, make a significant contribution to society? But how many never apply because of inadequate scholarship funds?"

Today the Institute has direct control over but half the total money used for scholarship aid. The remainder comes from external sources, but the conditions and extent of these are subject to constant change and preclude their being available for a large percentage of our students' scholarship needs.

After study of M.I.T.'s Alumni Fund performance through the years, your Alumni Fund Board has concluded that a goal of \$2 million from 20,000 Alumni is reasonable and possible for the 1965-1966 Fund year. It would be only natural that some Alumni ask whether such a goal is not presumptuous. Let us consider these points:

1. We must re-emphasize that \$2 million or even \$4 million will not answer all of the urgent needs of M.I.T. If achieved, a goal of \$2 million can be a giant step in providing help and is well within our capabilities. Such a goal is commensurate with the achievements of other universities and is consistent with the growth of other leading alumni funds.

2. Today, there are nearly 54,000 living M.I.T. Alumni. Approximately 29 per cent of them contributed last year to our Fund. Certainly it is reasonable to assume that 60 per cent of M.I.T.'s Alumni could participate in the Alumni

Fund, each according to his own capacity. This would produce 32,400 participants, well over our goal of 20,000.

3. In the 1964-1965 year, the average gift was \$105. Thus, if we can increase the number of our participants to but 37 per cent of our potential—a figure we've neared in the past—and draw but average gifts, the \$2 million goal can be a reality.

4. M.I.T.'s successful Second Century Fund is now three years behind us and the majority of its pledges have been fulfilled. Through the challenge of the SCF many Alumni found that their giving to M.I.T. could be materially increased. With this established pattern, is it not reasonable that a growing number of Alumni could bring their annual Alumni Fund giving near to their yearly installments of SCF payments?

5. Many Alumni share the conviction that our graduates have grown more conscious of the important role played by private education in the American scene. There is now a sensitivity to the need for independence, for the privilege of discovering, testing, and proving concepts that are best nurtured in the private institutions. A prime responsibility of M.I.T. is just such achievement.

While your Alumni Fund Board enthusiastically presents to you the case for a \$2 million goal in 1965-1966, we offer no formula to each Alumnus as he ponders, "What shall I give?" Only the donor can do justice to the question. He first must respond affirmatively to the question, "Will I give?" After that, only he can judge whether the gift, be it large or

small in dollar amount, is significant and meaningful to him by his current standards.

In my discussions with many Alumni who have several children in college at once, or are themselves in graduate school, I find the following question often raised: "Since my present responsibilities are so great that I can give only nominally to the M.I.T. Alumni Fund, why should I participate at all?" The answer is obvious to me. Basic participation, in sheer weight of numbers, can result in significant funds. Even more importantly, however, the broad percentage of alumni participation is witness to the world of alumni loyalty to M.I.T. Such loyalty often can be stimulus to the wealthy benefactor—be this benefactor a person, corporation, or foundation. Still more, participation to the extent of one's reasonable capacity brings further great dividends to M.I.T. and the Alumnus himself.

There is no doubt that men and women feel their greatest concern for those institutions in which they have a financial interest, and it is to M.I.T.'s deep interest to have Alumni who are concerned for her and her future.

It is true, too, that M.I.T. needs informed ambassadors in all parts of the world—and the best, most frequent means of being informed is through the monthly Technology Review sent to all Alumni Fund contributors. Further, there is immense satisfaction in being a part of something so positive in our society, so potentially influential in America's future, and so meaningful to the freedom, growth, and protection of the Western World as is M.I.T. today.

Like all Alumni, members of the Alumni Fund Board are appreciative of what we have gained from our education and from our association with the Institute over the years and are striving to help M.I.T. meet her destiny through the decades to come. In selecting the theme "Toward a Complete Educational Experience" for the 1965-1966 Fund year, we identify those areas where our Fund best can help M.I.T. and her students. The challenge is present, the goals are possible, and with courage, confidence, and optimism we solicit your support in the months ahead.

Changing Your Address?

If you are moving, please let us know five weeks before changing your address. Attach address label from your magazine to this coupon, giving us your new address below, and send it to Alumni Association, M.I.T., Room E19-439, Cambridge, Mass. 02139.

Name _____

New address _____

City _____ State _____ Zip code _____



How do you measure up to these men?

(Find out)

The man in the middle is Eddie Felsenthal from Memphis. Eddie, who was just elected President of New England Life's 63rd Career Underwriting Training School, stands 5' 6". Flanking him are two upstanding members of the school—Bob Kennedy from Denver on the left (6' 6"), and Ralph Carroll of Portland (6' 7").

The Career Underwriting Training School is just one example of the superlative training all New England Life newcomers receive—both on the job, and in the home office. Actually, at New England Life, learning is a never-ending business. And our students come in all sizes.

If you'd like to find out how you measure up to other men who have made a successful career with New England Life, there's an easy first step to take. Send for our free Personality-Aptitude Analyzer. It's a simple exercise you can take in about ten minutes. Then return it to us and we'll mail you the results. (This is a bona fide analysis and many men find they cannot qualify.) It could be well worth ten minutes of your time.

To receive your free Analyzer, just write to Vice President George Joseph, New England Life, Department AL3, 501 Boylston Street, Boston, Massachusetts 02117.

NEW ENGLAND LIFE

NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY: ALL FORMS OF INDIVIDUAL AND GROUP LIFE INSURANCE, ANNUITIES AND PENSIONS, GROUP HEALTH COVERAGES

These M.I.T. Alumni Are New England Life Representatives:

Arthur C. Kenison, '19, Boston
Stanley W. Brown, '36, South Hadley



The Investor is “in Politics”

Thousands of government rulings, directives, regulations, contracts, contract cancellations, appropriations, and of course, *laws*, all have an impact on corporate earnings—and, naturally, on investment values.

How can the *individual* investor keep alert to such events, as they affect him? We doubt that he can—yet we find that these are factors we must use in shaping *our* investment decisions.

UNITED STATES TRUST COMPANY
OF NEW YORK

45 Wall Street • Telephone 425-4500

Alumni Leaders Honored

Citations for "exceptional service to M.I.T. and to its Alumni Association" were presented to seven Alumni and two alumni groups, the Class of 1915 and the M.I.T. Association of Japan, at the Sixth Alumni Officers' Conference. Three individuals and a representative of the Class of 1915 received Bronze Beaver awards in person from *Samuel A. Groves, '34*, President of the Alumni Association, at a dinner September 10 in the Student Center. They are pictured on this page.

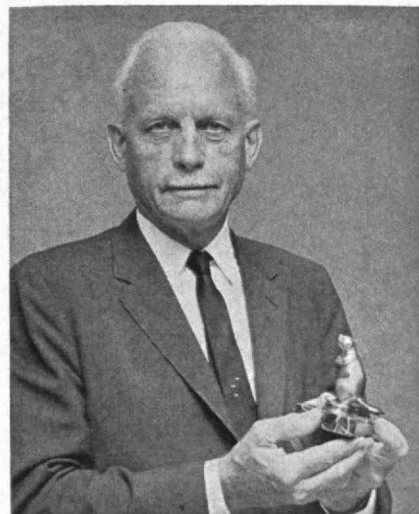
One of the awards was given posthumously to *Ralph T. Jope, '28*, and was accepted by a friend and classmate, *James Donovan*.

The Japanese Alumni were unable to send a representative and three recipients were unable to attend the conference: *Harry B. Duane, 3d, '57*, who was cited for his many years of service as a club officer and a class agent and for additional achievements "which include notably successful years as Regional Chairman"; *Robert B. Semple, '32*, now an Alumni Term Member of the M.I.T. Corporation, who was honored for his "deep and sincere" service to M.I.T. through the offices of Class Secretary and Class President and in his capacity of Regional Fund Chairman and Special Gifts Chairman; *Clarence M. Cornish, '24*, who was cited for his work as Vice-president-at-large of his class, Honorary Secretary since 1949, and President of the M.I.T. Club of Mexico from 1955 to 1960: "... the continuing success of the M.I.T. Fiesta in Mexico City is in large part because of his effective and devoted efforts."

The citation to the M.I.T. Association of Japan noted that, "though thousands of miles from M.I.T., the Alumni in Tokyo have consistently extended themselves to host ... visitors from the Institute far beyond ... ordinary hospitality."



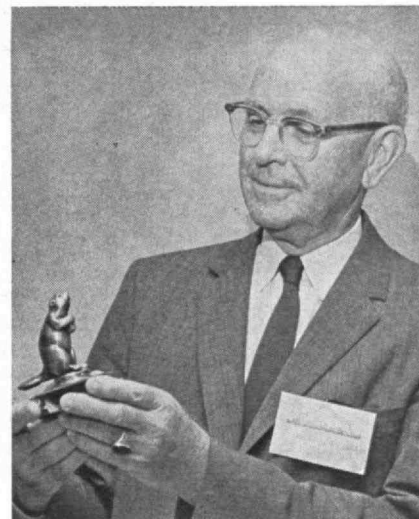
CLASS OF 1915—Max I. Woythaler accepted the award on behalf of his class: Blest with dedicated class leaders who have forged a unity of spirit and sense of devotion to M.I.T. that culminated in their 50th reunion gift—one that will stand apart as a new mark of achievement and inspiring challenge to their successors.



SAMUEL E. LUNDEN, '21—Past President and Regional Conference Chairman for the M.I.T. Club of Southern California, member of the Educational Council since 1954, chairman and solicitor for the Alumni Fund and Second Century Fund, he has for years given outstanding service to the Alumni Association.



FRANCIS M. MEAD, '29—Member of the Alumni Association's Executive Committee, Class Agent and Vice-president of his class, member of the Alumni Council, and Deputy Chairman of the 1965 Alumni Day, he has served the Alumni Association in these and many other ways with zeal and distinction.



MARSHALL B. DALTON, '15—Life Member of the Corporation, President of his class, former President of the Alumni Association, General Chairman of the Committee on Financing Development, and now successfully directing the Alumni Inter-fraternity Conference, he is a beacon to all Alumni of devotion to M.I.T.

FEEDBACK

Is HSGT Necessary?

We were recently made aware of M.I.T.'s activity on Project HSGT (High Speed Ground Transportation). This is an exciting project and one that stimulates interest and imagination in what can be done to speed the movement of people in the Northeast corridor. We would like to suggest, however, that some basic research go into man's need and desire for transportation. If man did not need to travel, then great areas of our land surface devoted to human transport would be freed for an end usage, such as buildings, agriculture, or recreational purposes.

M.I.T. should also recognize the tremendous opportunity for improved communication which will then minimize the need for transportation. Many concerns are now using closed-circuit television for inter-company communication, directors' meetings, and simultaneous stockholder meetings in several locations.

The goal of minimum transit time

portal-to-portal as envisioned by Project HSGT seems likely to increase crowding and difficulties with the movement of people. There are times when great masses of people desire to go to the same place. It is inevitable that under these conditions the transportation system, regardless of design capacity, will be overloaded and the terminal points severely congested. This is already much in evidence in large cities during the summer months or during special events.

Alternate opportunities exist. One way is to set a goal to minimize the need for transportation by providing face-to-face personal meetings through modern communication methods, such as color television combined with stereo-FM voice. A trunk line television connection between cities which allowed switched common-carrier messages for conferences, personal communications, and entertainment (from baseball to opera) could substantially reduce the desire and need for moving large

bodies of people from one place to another. Why isn't such a common carrier communication system a logical alternative to Project HSGT? If not a direct alternative, it certainly should be considered along with the project.

Further, in the planning of a new metropolis and in the renewal and rebuilding of our older cities, consideration should be given to minimizing man's daily travel requirements. People should be encouraged to live near their employment and recreational areas. New urban centers should incorporate these features so that man's use of his land and environment can be maximized. It is very desirable to increase the time and opportunities for family togetherness since many pressures are now exerted to reduce this possibility. We should consider extending our solutions to new methods of approach rather than merely attempting to provide more of the same. . . . Project HSGT could end up compounding our troubles. Let us consider the alternatives.

JOHN R. M. ALGER, '49
STANLEY H. SYDNEY, '52
Boston, Mass.

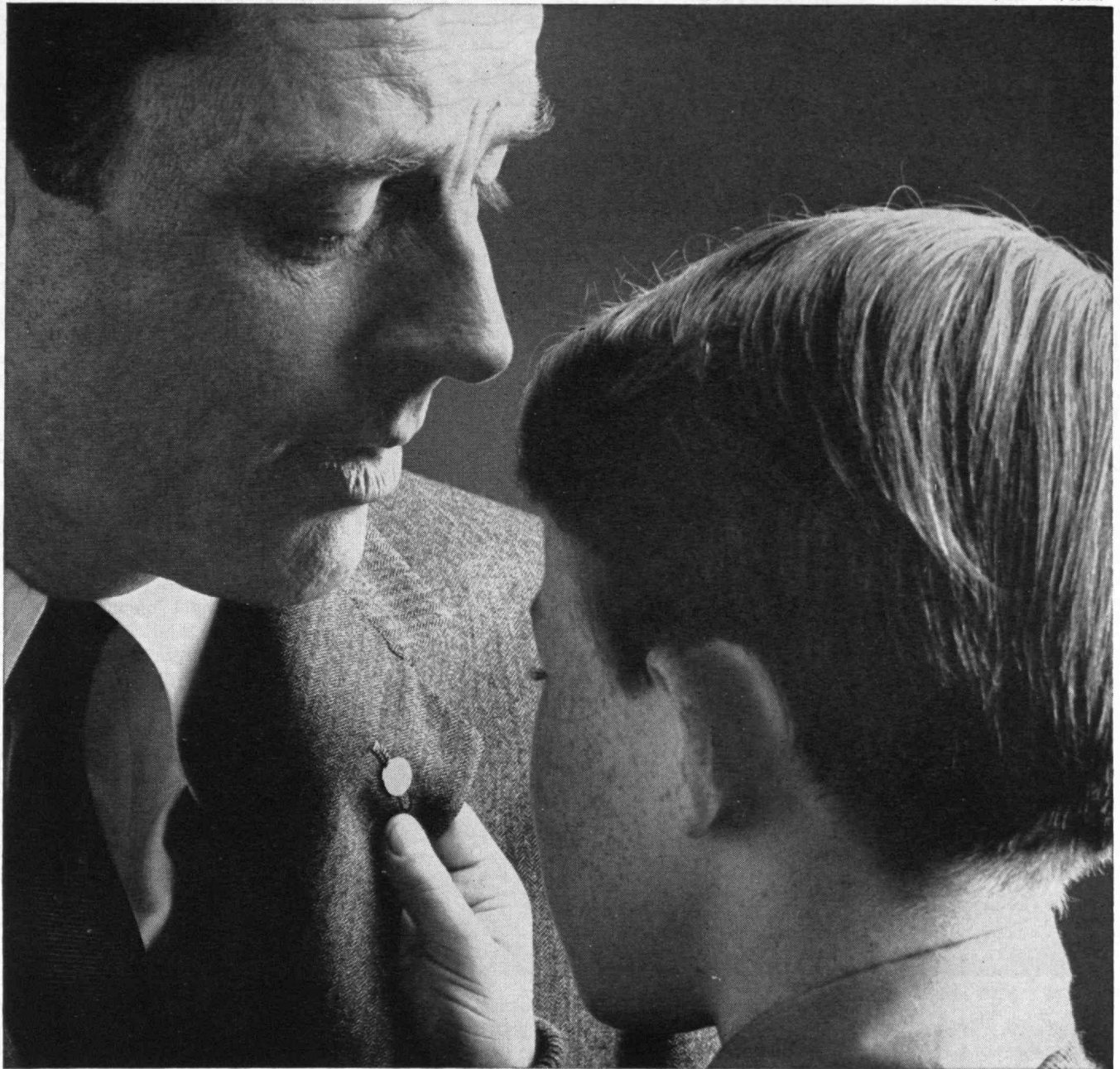
ALUMNI . . .

- *Do you regret not having bought a copy of Technique?*
- *Have you lost your yearbook since graduation?*
- *Would you like to see how the Institute has changed?*

TECHNIQUE, yearbook of the Massachusetts Institute of Technology, has a limited number of copies available for almost every year from 1885 to the present. (The 1966 issue will be ready in May, 1966.) These books are in "publication day" condition—brand new; they contain pictures of the graduating members of your class, pictures and articles about your fraternity, dorm, or club, and sections on the courses, the administration, and the Institute. This is indeed a rare opportunity for this offer *cannot* be repeated. For \$10.00, you will be sent a copy of TECHNIQUE for the year of your choice. However, you must act now, we have only several copies available for most years. Orders will be considered on a "first-come, first-serve" basis. When ordering a book, please send your name and address, the year for which you would like a copy, and a check or money order for \$10.00 to:

T E C H N I Q U E

84 Massachusetts Avenue
Cambridge, Massachusetts 02139



"YOU MIGHT CALL THE 'BLUE CHIP' A KIND OF DIPLOMA, SON"

"The big difference is that we have to graduate over and over again."

That's the story of the man who sports a blue chip in his lapel—the agent for Connecticut Mutual Life.

He's constantly being schooled to serve you better, taking courses in family protection, personal retirement programs, business insurance, insured pension and profit-sharing plans. In addition, the "faculty," a crack team of experts in the home office, keeps him up to date on policy benefits, and other information affecting personal and business insurance.

Another Blue Chip plus: his Alma Mater is a 119-year-old company whose record of higher dividends means lower net cost for its policyholders.

In short, his education pays off for you, in sure-handed, money-saving, Blue Chip insurance and service!

Connecticut Mutual Life

The 'Blue Chip' company that's low in net cost, too.

Your fellow alumni now with C. M. L.

Richard E. Boraks	'59	Hartford
Ralph Mendel		Graduate School New York



BUILDERS AND CONTRACTORS

240 SIDNEY STREET • CAMBRIDGE, MASS. 02139 • 876-7505

M.I.T., Here We Come!

By Carole A. Clarke, '21

"Where can I open a bank account?" "Should I postpone physics until the second term to get more electives for a premedical course?" "Is it easy to get a date in Cambridge?"

These and hundreds of much more complex questions were hurled for hours by 58 newly accepted freshmen at Professors Charles K. Crawford, '59, of the Department of Electrical Engineering and Robert J. Holden, Associate Dean of Student Affairs, ably assisted by eight members of the Class of 1968 and a few Alumni. The level of queries and responses was astronomically raised above that of 11 years ago, when this observer organized the first of a now continuous series of annual social and orientation gatherings for new students, forming part of the regular program of the M.I.T. Club of Northern New Jersey and the local members of the Educational Council of M.I.T.

Originally conceived on a much smaller basis, the first group met in the spacious home of the president of one of New Jersey's largest department stores as a means for introducing to each other some members of his son's forthcoming freshman class. With the aid of Professor B. Alden Thresher, '20, then Director of Admissions, invitations went to a limited number of freshmen-to-be who lived in the vicinity. Also present were a sophomore, a junior and a senior, representative of diverse interests as well as of dormitory and fraternity living groups. One Alumnus represented the Educational Council and the local club.

The great satisfaction of the students and the complimentary remarks of parents and the Admissions Office led to continuance of this event and its current expanded form, now distinguished by active participation of the M. I. T. Faculty. This year, the New Jersey Club sent congratulatory invitations to all

82 young men and women in the state of New Jersey who had been admitted to the Institute, telling them: "We'd like to meet you and have you know us; perhaps we can answer some of your questions. Graduates and undergraduates will be on hand for informal discussions." Announcement was made that Dr. Crawford, a native New Jersey, and Dean Holden would be present to explain the curriculum available to entering students and to describe entrance procedure.

More than 100 people convened in a large conference room in the Robert Treat Hotel, Newark, at the end of June. Some Honorary Secretaries and Educational Counselors brought the new students they had interviewed and a few parents drove their young people to the hotel. A welcome by the Club's officers was followed by informal introductions of the M.I.T. guests and the one coed and seven men of the undergraduate group. Each new student gave his name and home town.

Dean Holden simplified the timetable of action on such matters as R.O.T.C., freshman advisers and freshman weekend. Professor Crawford painted a concise picture of Technology's philosophy of education. The meeting was turned over to the new students for the balance of the evening to quiz the Faculty members, undergraduates and Alumni to their hearts' content. Light refreshments were served, buffet style.

It is a heartwarming experience to find out how much effort most of these young men and women have put into studying themselves to determine the sort of education which would offer maximum satisfaction and then in exploring a school.

No better public service can be performed by Technology's many alumni clubs than to provide local means for a group of prospective students to meet each other and to get ready answers to the unknown factors which most of us have had to learn the hard way. The only caution is that some positive method must be devised to turn off the questioning and let everyone go home. If any New Jersey freshman still hasn't reported for classes in Cambridge, he probably will be found in Parlor C at the Robert Treat, carefully outlining the remainder of a complex proposition.

New Computer Books For Your Reference Bookshelf

All available on 10-Day examination

NUMERICAL METHODS AND COMPUTERS (3955)

By S. S. KUO, *University of New Hampshire*

This text is essentially concerned with achieving two objectives: providing the necessary fundamental knowledge of the computer-oriented numerical methods for basic problems in algebra and analysis; acquainting the student with the digital computer. A flow chart and a tested FORTRAN program are emphasized for each numerical method.

341 pp., 131 illus. (1965) \$10.75

NUMERICAL ANALYSIS (2093)

By CARL-ERIK FROBERG, *University of Lund, Sweden*

Requiring a background of elementary calculus and differential equations, this text is intended for introductory courses in numerical analysis. Stress is placed on modern and efficient methods. Consistent with this emphasis, a brief account of the theory of matrices is presented, while applications of matrix methods have been treated in considerable detail.

340 pp., 22 illus. (1965) \$8.95

PRINCIPLES OF COMPUTATION (0870)

By PETER CALINGAERT, *International Business Machines Development Laboratory*

This text, which requires a knowledge of elementary calculus, is intended for introductory courses dealing with computation, computers, or programming. Designed primarily for students of mathematics, engineering, the physical and natural sciences, and the quantitative social sciences, it presents a basic introduction to the principles of computation—both digital and analog, both automatic and manual.

200 pp., 81 illus. (1965) \$7.75

TIME-DOMAIN ANALYSIS AND DESIGN OF CONTROL SYSTEMS (1603)

By RICHARD C. DORF, *University of Santa Clara*

This book is designed to introduce the student of control theory to analysis and design in the time domain. Covers the formulation and solution of equations describing the performance of control systems. The analysis and design is accomplished in the time domain and is useful for digital computer calculation.

194 pp., 144 illus. (1965) \$8.95

LINEAR DATA SMOOTHING AND PREDICTION IN THEORY AND PRACTICE (0610)

By R. B. BLACKMAN, *Bell Telephone Laboratories, Inc.*

This book is essentially concerned with methods of data-smoothing and prediction which have been considered for practical use—many of which have actually been put to practical use. The subject is approached from the transmission point of view familiar to most communications and electronic engineers.

182 pp., 79 illus. (1965) \$11.75

INTRODUCTION TO THE LOGICAL DESIGN OF SWITCHING SYSTEMS (7575)

By H. C. TORNG, *Cornell University*

The emphasis of the presentation is placed on delineating the reasoning and thinking necessary to design a switching system. The book's ultimate objective is to enable the reader to pursue advanced study and to practice in the areas of computer switching, communication switching, and control switching. Besides presenting new results in switching theory, such as the geometrical interpretation of the threshold switching function, systematic approaches in state reduction, and sequential circuit decomposition, the text also stresses electronic as well as other switching components.

286 pp., 173 illus. (1964) \$9.75

VISIT OUR EXHIBIT AT AFIPS, BOOTH #141

Please send for my inspection and approval, a copy of each book I have checked. (I understand that I can return the books in ten days if I decide not to keep them.)



**ADDISON-WESLEY
PUBLISHING COMPANY, INC.**

Dept. A-507
Reading, Massachusetts

() Kuo, NUMERICAL METHODS AND COMPUTERS (3955)	\$10.75
() Froberg, NUMERICAL ANALYSIS (2093)	8.95
() Calingaert, PRINCIPLES OF COMPUTATION (0870)	7.75
() Dorf, TIME-DOMAIN ANALYSIS (1603)	8.95
() Blackman, LINEAR DATA SMOOTHING (0610)	11.75
() Torng, INTRO. TO THE LOGICAL DESIGN (7575)	9.75

Name Title

Affiliation

Address

City State Zip Code

() Please extend College Professor's Discount

() Payment Enclosed. (We pay postage if you enclose check—same inspection privilege)

(Continued from page 35)

law eliminates the problem. All is well until another evil arises and is disposed of in the same way.

This view of government, echoing the aspiration that every wrong should have a legal remedy, is venerable, noble, and ambitious. Declining to acknowledge that any problem is insoluble, and thus avoiding the crippling fatalism of some other societies, it is one of the great faiths that moves American civilization. At the same time, however, this optimism has a darker aspect. It encourages those outbursts of political passion that have marked great crises in American history; for men who strongly believe that every problem is soluble also believe that any problem which long continues unsolved must owe its persistence to frightful inefficiency or willful malice. Nevertheless, the benefits conferred by a passionate desire for justice served with undisillusioned energy seem to have exceeded the disadvantages of cynicism, irresponsibility, and violence; thus, one might conclude that, on balance, the common American view of law is socially wholesome.

It would still be subject to one other criticism. It is totally inaccurate.

Contrary to its premises, the public does not easily recognize wrongs. Especially in the domain of economic policy, what people eventually come to regard

as wrong is often an inevitable by-product of arrangements they regard as good and desirable.

Contrary to its premises, the legislature does not always execute the will of the people, even when it would like to, because it cannot tell exactly what that will is or exactly how to translate that will into statutes.

And finally, statutes do not eliminate all problems. A statute cannot prevent violations; it can only teach, persuade, or penalize. More precisely, it can only penalize men if other men have first accused them and then found them guilty.

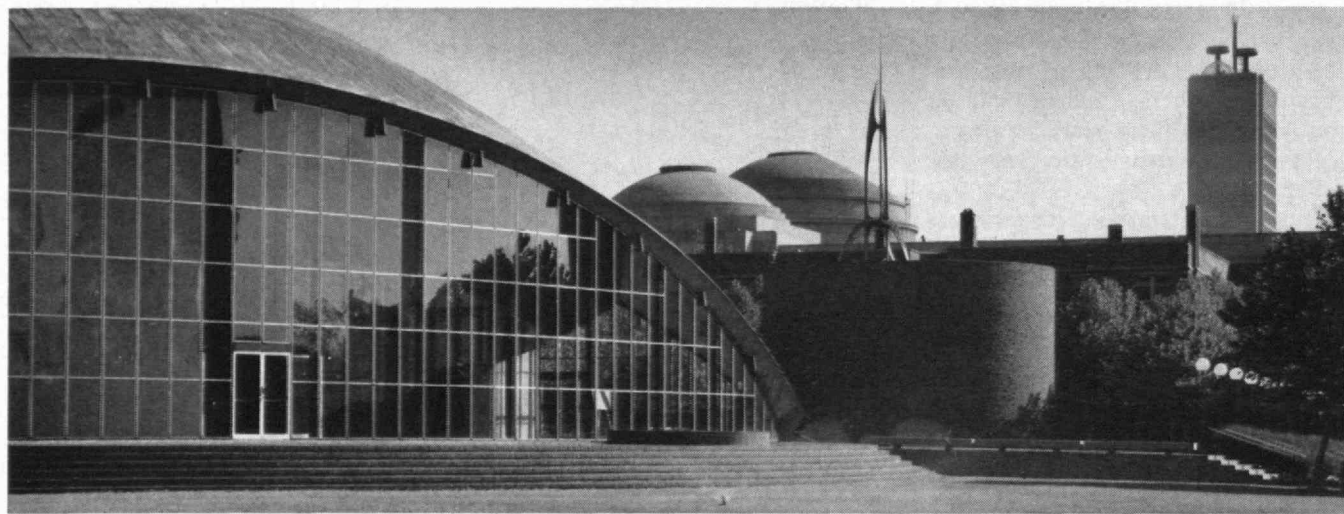
A law, therefore, never produces exactly the results that anyone would have desired. It falls short, overshoots, or goes clean off in some other direction.

—From **LAW AND ECONOMIC POLICY IN AMERICA**, by William Letwin (*Random House*, \$5.95).

The Lamp of the World

Most dogmas represent useful holding operations designed to help suffering humanity visualize the eternal truths whose contemplation can give solace to the human spirit. A dogma is the emotional equivalent of a shelter, erected to protect a certain area of thought space in which are placed precious and needed utensils, and to hold away the great dark void of the un-

(Concluded on page 54)



CAMBRIDGE

This historic American city and center of learning becomes the subject of Katharine Knowles' perceptive camera and Walter Whitehill's vivid and knowledgeable commentary — a successful collaboration which began with their *Boston: Portrait of A City*. Text and 95 magnificent photographs cover Cambridge Common, Mt. Auburn, Brattle and Linnaean Streets,

text by *Walter Muir Whitehill*

for photographs by *Katharine Knowles*

Craigie House, Elmwood and Longfellow Park, Harvard Square, The Yard, Harvard College and its graduate schools, Radcliffe, Massachusetts Institute of Technology, Cambridgeport and the Broad Canal, the Charles River and the controversial sycamores along its banks. Printed by The Meriden Gravure Co., known internationally for the quality of their work. \$5.00

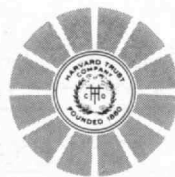
AVAILABLE FROM YOUR LOCAL BOOKSTORE OR BARRE PUBLISHERS, BARRE, MASSACHUSETTS



This photograph was taken near Kresge Auditorium in Cambridge, just minutes away from a Harvard Trust office. There's one just minutes away from you, too.

There's a Harvard Trust Full-Service Office near you, Mr. Sullivan

Work around here, Mr. Sullivan? You can do all your banking close by, too, at Harvard Trust. The office near you is a Full-Service Bank. It is *small* enough so that everyone — from the manager on down — takes a personal interest in your banking needs. Yet, as part of a \$140 million bank, it is *large* enough to offer you service comparable to that of any other financial institution in the Greater Boston area. So whatever your banking needs — personal, commercial, trust services — drop in at Harvard Trust soon. It's just a few steps away . . . with everything a bank has to offer.



The shortest path to
person-to-person banking
**YOUR HARVARD TRUST
FULL-SERVICE OFFICE**

HARVARD TRUST COMPANY
Offices in Cambridge, Arlington, Belmont, Concord and Littleton

Member F.D.I.C. • TOTAL ASSETS IN EXCESS OF \$140 MILLION

(Concluded from page 52)

known that presses about us all. Hence dogmas have a very important place in the erection and perpetuation of a religion that is to minister to the needs of the common man.

But dogmas retained too long restrain growth, or cause pain where growth occurs. The shell of a crustacean, useful to protect its soft body, becomes restrictive as it grows. This plastic armour must be split if expansion is to be accommodated. Science provides useful mechanisms for splitting outmoded dogmas. All of us need to shed our spiritual shells at times and grow larger ones, but we are likely when we do this to feel considerable tenderness until the new shell hardens.

Constant vigilance is needed on the part of priest and preacher to keep the external expression of the inner principles of religion in pace with man's development. Science helps in this by constantly feeding new information about man and nature into religion, and producing growth which prevents dogmas from remaining crystallized too long. Understandably some religious leaders resist such change, for they are mortal custodians of eternal verities, and can be expected to resent the cracking of the literalness that stiffens the embodiment of spiritual truth.

We may ask the scientist who resents the worshipping of what seem to him false images of real truths, "What choice has man, with his limited comprehension as he toils upward on his path, but to get his light from the lamps he sees about him? And who can blame him if during the earlier parts of his climb he confuses the lamp with the light?"

—From **WHAT MAN MAY BE**, by George Russell Harrison, reprinted in **SCIENTISTS AS WRITERS**, edited by James Harrison (*The M.I.T. Press*, \$1.95). By permission of *The M.I.T. Press*. © 1965 by the Massachusetts Institute of Technology.

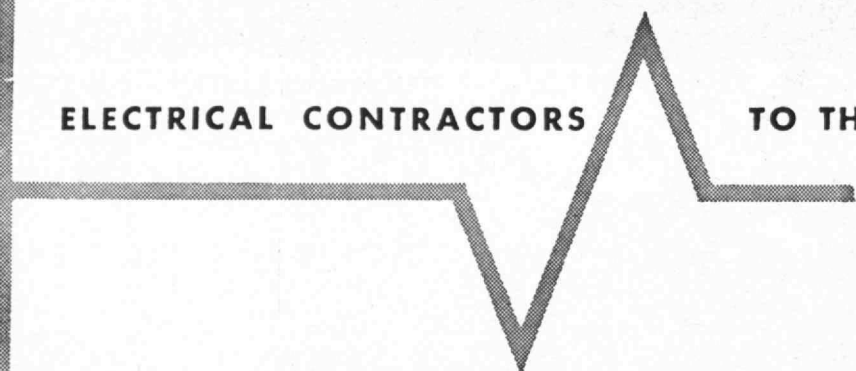
Have You Seen These?

Recent publications likely to be of interest to many M.I.T. Alumni have included:

Embodiments of Mind, the selected writings of Warren S. McCulloch of the M.I.T. Research Laboratory of Electronics (*The M.I.T. Press*, \$12.50).

The Scientific Estate, a discussion of the role of science in government by Dean Don K. Price of the Harvard School of Public Administration (*The Belknap Press of Harvard University Press*, \$5.95).

The City, by Eliel Saarinen (an M.I.T. Press paperback, *The M.I.T. Press*, \$2.95).



ELECTRICAL CONTRACTORS **TO THE NATION SINCE 1895**

LORD

ELECTRIC COMPANY, INC.

BOSTON • NEW YORK
PITTSBURGH • PORTLAND, ORE.
LOS ANGELES • SAN JUAN, P. R.

HERE IS A THOUGHTFUL GIFT IDEA THAT WILL BE WELCOMED

by

- Potential M.I.T. Students
- An Alumnus Who Does Not Receive **TECHNOLOGY REVIEW**
- Parents of an M.I.T. student

Mail To:

TECHNOLOGY REVIEW

M.I.T. Room E19-430

Cambridge, Massachusetts 02139

Please send, in my name, One Year's Gift Subscription of *Technology Review* to the name below.

Name

Address

City State Zip

☐ Check Enclosed \$4.00

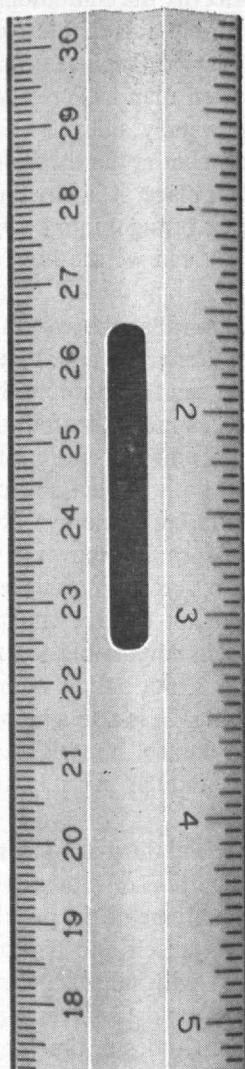
☐ Please Bill Me

Name

Address

City State Zip

How does your job measure up to a career with Mass Mutual?



IN INCOME? One out of every 5 Mass Mutual representatives earned over \$20,000 in 1964. Those with 5 or more years' experience averaged \$14,978.

And the top 100 producers averaged \$36,943 for the year.

IN PRESTIGE? Mass Mutual representatives hold an unusually high proportion of the top honors in the insurance field.

One in 3 Agents and General Agents won the National Quality Award in 1964.

One in 8 was a member of the Million Dollar Round Table.

One in 5 Mass Mutual men is a Chartered Life Underwriter (one of the industry's highest honors)!

IN ASSOCIATIONS? Mass Mutual men enjoy the rewards of working with successful people. In 1964, new individual policies (not including those issued on Pension Plans) averaged \$19,195.

Mass Mutual wrote 6.5% of all Pension Trust Plans written in the U.S. last year.

And out of \$1.1 billion of individual life insurance we sold in 1964, Business Insurance accounted for \$210 million!

Success has many yardsticks. In any business, however, these are the factors that count.

If you are dissatisfied with your progress, or feel that your rewards don't measure up to your effort ... it's probably time to re-evaluate your situation. Compare your present job with the above facts about a career with Mass Mutual.

Mass Mutual is a solid company, with over 100 years' experience. It's a company held in high regard by the rest of the Insurance industry. If you'd like more information on

a career with Mass Mutual, just write a personal letter about yourself and mail it to Charles H. Schaaff, President Massachusetts Mutual Life Ins. Co., Springfield, Massachusetts.

It could be one of the most important letters you've ever written.

**MASSACHUSETTS MUTUAL
LIFE INSURANCE COMPANY**

Springfield, Massachusetts / organized 1851



Some of the Eastern Group alumni in Massachusetts Mutual service:

LAFAYETTE

David B. Adler, C.L.U., '17, Orlando
Frederic F. Lawall, '22, New York
David K. Aldrich, C.L.U., '38,
Allentown
Frank W. Hiller, '43, Philadelphia
Thomas J. Gasser, Jr., '51
Philadelphia
Richard A. Faust, '56, Binghamton
Aman M. Barber, Jr., C.L.U., '59
Allentown
Cameron D. Warner, '61,
Wilkes-Barre

LEHIGH

Russell E. Hoaster, C.L.U., '31,
San Antonio
Edward Billstein, Jr., C.L.U., '40
Atlanta
R. Lester Dodson, Jr., '44 New York
Jerry Friedenheim, '54, Allentown

M.I.T.

Lyman L. Tremaine, C.L.U., '23
New York
Harold G. Ingraham, Jr., C.L.U., '49,
Home Office

Can Man Guide Social Change?

(Continued from page 27)

when we wish *consciously* to shape man and society into new forms. Occasionally, a technical success in shaping man and his environment, such as the space program, or even thought reform, misleads us into thinking man can manipulate himself into any shape desired. We forget that the real problem of man's future society consists in man's social relations with his own kind and the consequent unintended and unexpected results that arise from this relationship. We are still left with the fact that, while man can assume almost any shape by unconscious development, humanity is a pretty tough material to push into a foreordained and contrived form of social existence.

So far, we have discussed the problem of man as his own limit to social change on a semi-factual, semi-social science level. On another, more metaphysical level, certain fundamental aspects of man's nature may be discerned—fundamentals that persist as a block to radical changes in the human condition (as distinguished from the variegated social exterior of that condition). I shall discuss these fundamentals under three high-sounding expressions: alienation; the boundary conditions obtaining for any science of man that we might look forward to discovering; and, utopia and the problem of repression.

The theme of alienation is popular today in two forms: the Marxist and the humanist. In both, man is seen as alienated from his own creations *because* he falsely endows them with a life of their own and then lets them dominate him as if they were independent, creative entities. Marx's starting point was religious alienation. According to Marx, man sets up gods as projections of his own imagination and then endows them with autonomy and a will of their own. As a result, the gods are thought to dominate man as alien beings outside his control. Next, Marx saw this same phenomenon as occurring with capitalist economics (a story too familiar to repeat here). Interestingly enough, Marx saw changing technology as the primary factor in ending this last alienation.

Today, however, for many humanists it is technology itself that creates alienated man, with technology operating as if it had an independent existence. In any case, both Marxists and humanists alike believe the problem of alienation, whatever its particular form, to be capable of a final solution. Man need only become conscious of his own creative powers.

My own view is that man's fundamental conditions of alienation will *not* end. Even though his economics and his technology come under his control, other social processes will remain unconscious and unintended, dominating man from the "outside." For example, even a controlled technology will pose unexpected problems. Thus, although we tend to see technology and science as a constant forward and progressive solution of problems, as a merely cumulative and additive growth and development, in fact our modern technological-scientific complex creates new (and perhaps more complicated) prob-

lems in the process of solving old ones. There is no once-and-for-all solution. And this fact is a fundamental characteristic of the human condition.

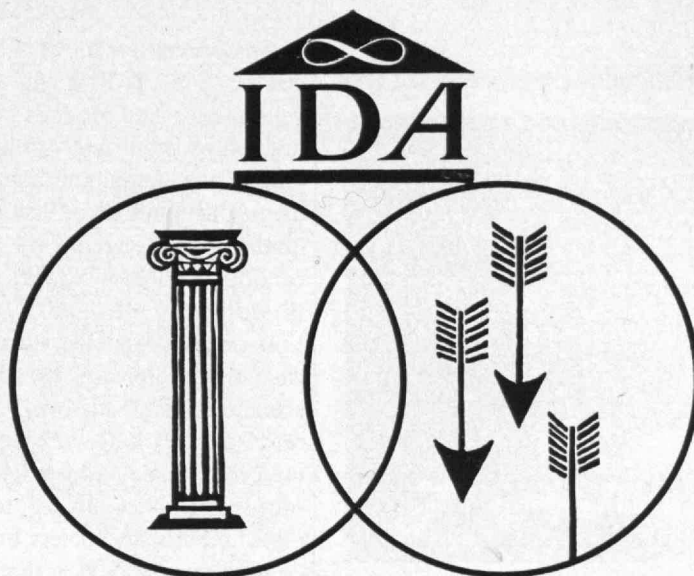
My second point concerns the limitations to any science of man. Put very simply, it is that a science of man, or even partial science thereof (such as economics), can only come into being when man has created the system that the science then rationally analyzes. This becomes clear if we look for a moment at the theory of evolution. Until evolution has taken place, it is obvious that a theory of evolution cannot be brought into being. Only after evolution has come about can we see how and perhaps why it occurred.

Extrapolating this notion that the system has to exist before the science that describes and regulates it can come into being, we can say for example that a science of international relations cannot exist until the actual international order itself becomes far more rational than it is. Then the science can both predict and prescribe (as economics does for the market economy) how the actors ought to and thus will perform. Moreover, if we take seriously the notion that man's creation of his social systems is something that we cannot control and predict completely, it follows that it is impossible for us to have a final science of man. Thus, not only is man by nature a perpetually alienated being, he is also a being unable scientifically to shape and control himself and his society (except in very limited, though possibly somewhat increasing, degree).

Now, this brings me to my third and last metaphysical entity: utopia and the question of repression. The effort to reach a utopia is the extreme of the problem involved in man's effort to shape himself and his future society. Utopia seeks to do away with all the uncertainties and unintended consequences, and to fix man's future outside the vagaries and vicissitudes of time and place. The history of utopias is a very large topic in itself, one hardly to be broached here. Instead, I want to take only one issue—the issue of repression—involved in one sort of modern utopian writing: that of some of the so-called neo-Freudians. These neo-Freudians, for example, Norman Brown in his *Life Against Death*, or Herbert Marcuse in *Eros and Civilization*, seek to go beyond Freud's anti-utopian conviction that mankind would never be able to work out to a society characterized by the absence of repression, and thus also by complete and total happiness and the final settlement of all problems.

I should like nothing better than to believe in this sort of utopian nonrepressing man and society, but I find myself stumbling over the very Freudian theory that these neo-Freudians try to go beyond. Without going here into the substantiating details of Freudian dynamics, it is clear, according to Freud, that man cannot exist without repression, and that all men have something like the same psychological development to go through involving repression (such as passing through the Oedipal complex, learning to accept ambivalent desires, such as mixed desires of love and hate, and so forth).

(Concluded on page 58)



Where Two Worlds Meet. The nature of the problems assigned to the Institute for Defense Analyses provides our staff members with the best of two worlds—one of intellectual challenge, the other of national purpose.

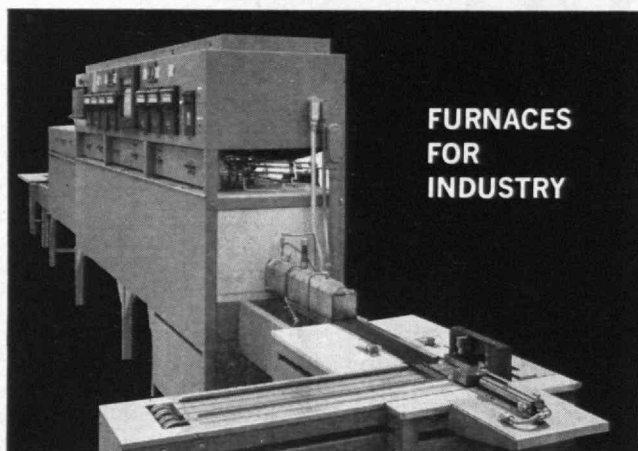
In one world, the analysis of military systems and processes plunges us deep into development of new and penetrating methodological techniques, an exciting and fulfilling activity.

At the same time, our staff is squarely in the world of national defense. Offices from which many of the nation's basic decisions must come—the Joint Chiefs of Staff, the Director of Defense Research and Engineering, and others—look to IDA for advice and research on which to base these decisions.

We presently need scientifically trained people with grounding in operations research and systems analysis. If you require both challenge and purposefulness, write to T. J. Shirhall, ***Institute for Defense Analyses***, 400 Army-Navy Drive, Arlington, Virginia 22202 (near the Pentagon). An equal opportunity employer sponsored by twelve of the nation's leading universities.



J. HOWARD BECK '35	LOUIS GIORDANO '58
RAPHAEL BLIMAN '62	FORREST GOLDSMITH '35
ROY DEWHIRST '64	NATHAN PARIS '32
SIDNEY DRESSLER '51	MARTIN PHILLIPS '47



FURNACES FOR INDUSTRY

Decarburizing and oxidizing in one operation

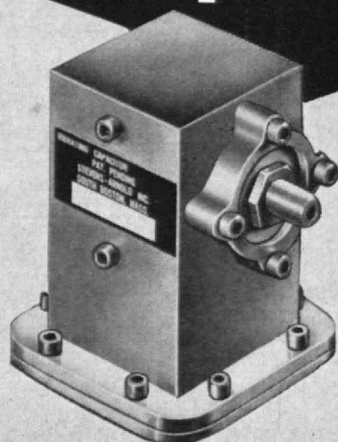
... with patented heat and gas barriers

TYPICAL APPLICATION Kovar is decarburized in wet H_2 between 1000°C. and 1100°C. The product passes through Heat and Gas Barrier where its temperature drops quickly to 800°C. At this temperature, the resulting oxide formation is ideal.

ENGINEERS are invited to investigate employment opportunities. Send resume or write to:

BTU ENGINEERING CORPORATION
BEAR HILL, WALTHAM, MASSACHUSETTS 02154 U.S.A.

New Stability Specs vibrating capacitors



Difficult Electrometers
made easy.

Drift with constant temperature 0.05 to 0.1 mv/24 hours noncumulative.

Models for AC drive or oscillator drive.

Particularly suited for long term stability.



Write for Catalog 523 G

**STEVENS
INCORPORATED
ARNOLD**

QUALITY SINCE 1943

7 ELKINS ST., SOUTH BOSTON 27, MASS.

S/A-36-1/4

Can Man Guide Social Change?

(Concluded from page 56)

This development is a perennial, eternal aspect of being a human. True, the particular shape that the development takes depends on the culture in which the individual is born; hence, the anthropologist studying different tribes finds the same psychological drives in all of them, but handled in vastly different ways. In sum, the libidinal impulses and the repression that attends them cannot be done away with; they can only be dealt with in various shapes and forms.

If one accepts this view, and I myself do, then it is clear that utopia—as the farthest extrapolation of man's attempt to shape his own society, to the extent even that repression no longer exists—is sharply undercut by the notion of man as a Freudian animal. The Freudian message, basic to any attempt to plan ahead, not only a complete and utopian society but even drastic changes in on-going society today, is that while we can effect a better solution to various aspects of our culture by channeling certain impulses in a somewhat different direction, we must always pay a price. To achieve one sort of satisfaction, we must forego some other satisfaction. All culture is an effort at balancing, always imperfect, man's possibilities for happiness. Such is the rather stoical conclusion of the Freudian oracle concerning man's future prospects.

It is time now to join the findings of what we may call our high and low roads. The low road, through man's past, has taken us over two million years and has changed man from a hunting animal to a farmer and then to an urban dweller. In this latter shape, man projects his possible changes in terms of cultural and tool-making variations instead of physical varieties. Yet, even this most recent, new sort of evolution cannot be said to be planned, predictable, and controlled. Man takes on his novel social and cultural shapes without foreknowledge; while there appears to be no limit to his possible forms, he cannot choose which personality—that is to say, which mask, that he will wear. Such is the message at the end of our low road.

Our second road, the high road of philosophical speculation, points in the same direction. It leads to a view of man as a distinctly limited being in effecting his own social change. Man can, on this interpretation, find no Archimedean point outside himself from which to transform himself. Specifically, man will always be characterized by alienation, by the absence of utopia and the presence of repression, and by the lack of a definitive science of man. This is the human condition. In short, man's own humanity is the limit to his conscious social change. Potentially, as the low road has shown us, he is protean, and can assume any cultural form. In fact, however, as the high road has pointed out, he cannot transcend himself. Thus, in dealing with the problem of man as a limit to his own social change, we are faced, it seems—to use a final metaphor—with a sort of humanistic Heisenberg principle of indeterminacy.



Whose new battery lets you carve like an expert anywhere?

The same Union Carbide that makes graphite cloth for rocket nozzles.

Carve fast and with the flourish of a master chef whether you are in the woods of Maine, your own back yard, or having a formal dinner party.

New cordless electric carving knives take full advantage of battery power. They are conveniently portable and weigh half as much as leading cord models. What's more, these knives are so power packed they can slice roast beef, ham, turkey and other meats in a jiffy, making neat slices all the way. Their energy comes from a new kind of EVEREADY nickel-cadmium battery developed by Union Carbide. It's rechargeable.

A lot of new things are happening at Union Carbide. Another

recent development is graphite textiles used both in the white heat of rocket blasts and the extreme high temperatures of industrial furnaces. And compact fuel cells, which generate electric power by a chemical reaction and provide a whole new source of energy, are also now being marketed.

To keep bringing you these and many other new and improved products, we'll be spending half a billion dollars on new plant construction during the next two years.

Union Carbide Corporation, 270 Park Avenue, New York, N. Y. 10017 • Divisions: Carbon Products, Chemicals, Consumer Products, Fibers & Fabrics, Food Products, International, Linde, Mining & Metals, Nuclear, Olefins, Plastics, Silicones, Stellite. In Canada: Union Carbide Canada Limited, Toronto

**UNION
CARBIDE**

(Concluded from page 16)

Professors Honored

Professor Emeritus *Samuel C. Collins* of M.I.T. received the Rumford Prize from the American Academy of Arts and Sciences. . . . Associate Professor *Steven A. Coons*, '32, was cited for effective presentation of a paper at the National Meeting of the American Institute of Chemical Engineers. . . . Professor *John Wulff* was given the Albert Easton White Distinguished Teacher Award by the American Society for Metals.

Professors *Arthur C. Cope* and *Cyril S. Smith*, '26, have been appointed members of the Committee on Science and Public Policy of the National Academy of Sciences. . . . President *Julius A. Stratton*, '23, has been elected a Director of the Westinghouse Electric Corporation. . . . Associate Professor *Kurt S. Lion* was chosen to give the Distinguished Lecture for 1965 of the Instrument Society of America.

Four New Musicians

Four new members have joined the music staff at M.I.T. They are David M. Epstein, Associate Professor of Music and conductor of the M.I.T. Symphony Orchestra; John Cook, lecturer in music and Institute organist; John Huggler, lecturer in music; and John S. Oliver, assistant conductor of the M.I.T. Glee Club.

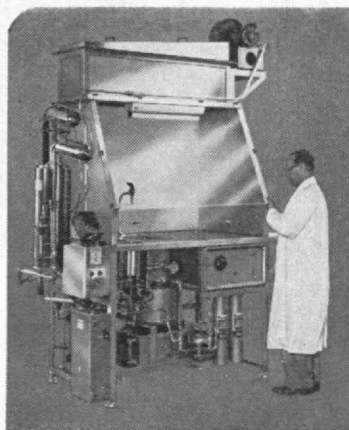
Professor Epstein, founder and conductor of the Youth Symphony Orchestra of New York, is a teacher, conductor, and composer who has also been a music critic and editor for *Musical America* and musical director of New York's educational television station, WNDT. He holds degrees from Antioch College, the New England Conservatory of Music, Brandeis University and Princeton University, and has studied with Darius Milhaud, Max Rudolf, Roger Sessions, George Szell, and others.

John Cook, lecturer in music and Institute organist, was born in England and studied organ at Christ's College, Cambridge, and at the Royal College of Music. He has

been pianist and conductor with the Ballets Jooss, and conductor of the Old Vic Theatre Company Orchestra. In 1955 he became associated with the Shakespearean Festival at Stratford, Ontario, and has written scores for 13 of the Festival's productions.

John Huggler, lecturer in music, was composer-in-residence with the Boston Symphony Orchestra during 1964-1965. Several of his orchestral compositions have been played by the Oklahoma City Symphony, with which he was a clarinetist from 1952 to 1956, and his chamber music has been performed at the Composers' Forum of the Donnell Library and the New School in New York. Mr. Huggler has taught at Cornell University and at Brooklyn College. He holds a bachelor of music degree from the Eastman School of Music.

The assistant conductor of the M.I.T. Glee Club will be John S. Oliver, who also conducts his own group, the John Oliver Chorale. Mr. Oliver holds a bachelor of music degree from Notre Dame University, where he had been assistant conductor of the Glee Club.



BARNSTEAD CLEAN ROOM

DEVELOPED
AND
ENGINEERED
BY

A. White, '26
President

V. C. Smith, '48
Vice-President
Research & Development

N. A. Everett, '48
Manager
Technical Services

S. Beran, '58
Experimental and
Development Engineer

PURE WATER "FIRSTS" COME FROM BARNSTEAD

Barnstead®
STILL AND STERILIZER CO.

41 Lanesville Terrace, Boston 31, Mass.

GEARS

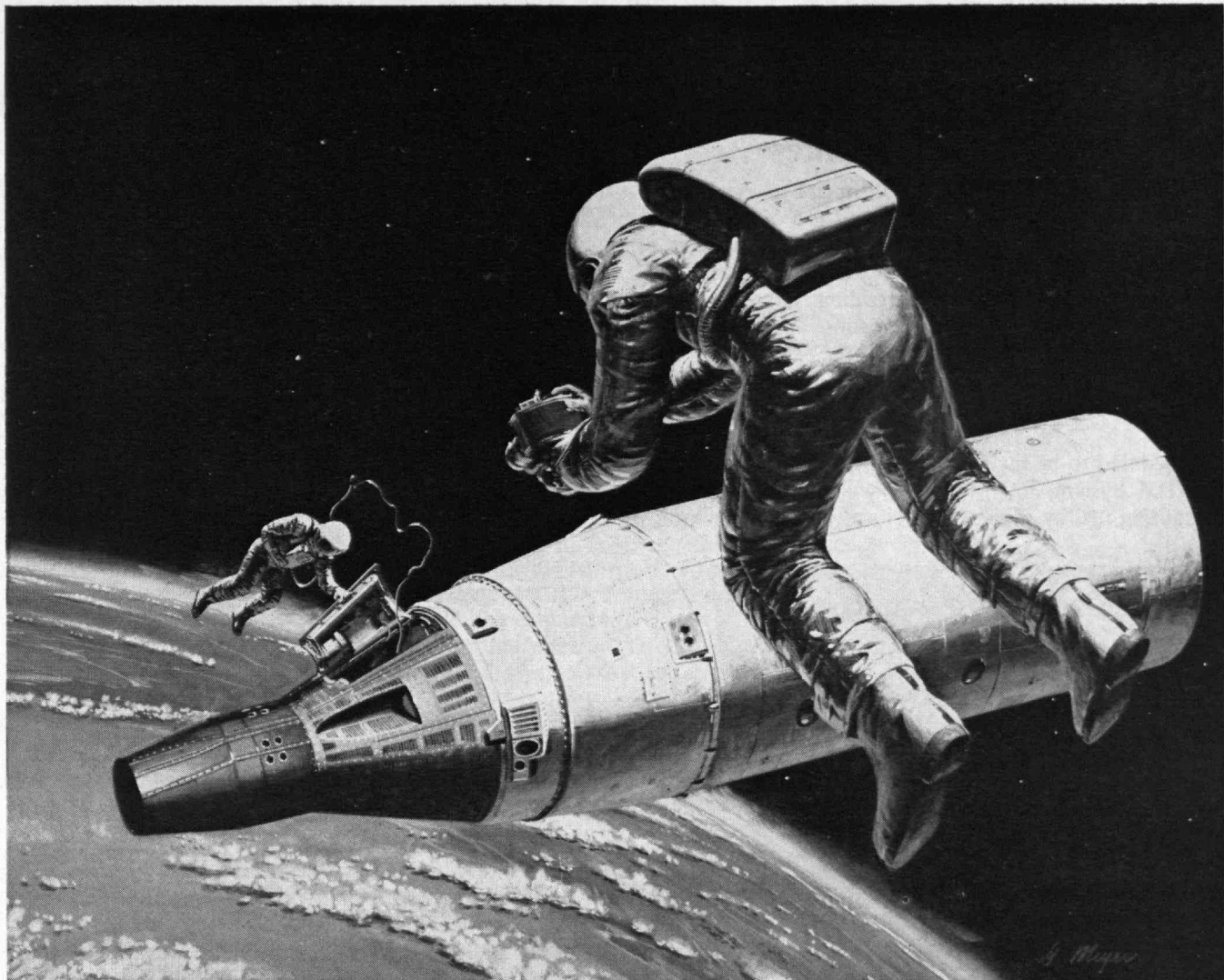
Designed and
Manufactured to meet
YOUR
Production Requirements

•
Custom Gears Exclusively
•

DIEFENDORF

GEAR CORPORATION

SYRACUSE 1, N. Y.



The AiResearch Integrated Maneuvering System combines life support, communications, propulsion, and stabilization for increased mission effectiveness.

Unique modular features are designed into Garrett's versatile AiResearch Integrated Maneuvering System (AIMS).

The basic module incorporates life support and communications. It provides atmosphere, heating, cooling and moisture control for

up to four hours. The astronaut has a choice of self-contained or umbilical operation dependent upon mission requirements.

A stabilization module provides roll, pitch, and yaw control; off-center of gravity thruster capability, and stable navigation reference.

Hot or cold gas propulsion modules, incorporating wrist or pack mounted thrusters, can be integrated with the basic module to provide required impulse capability for the mission profile.

The Garrett-AiResearch modular concept offers maximum

flexibility for both vehicle storage and mission planning.

The same reliability proved by Garrett's mission-tested environmental control systems on Mercury and Gemini is being designed into the AiResearch Integrated Maneuvering System.

Garrett
is experience



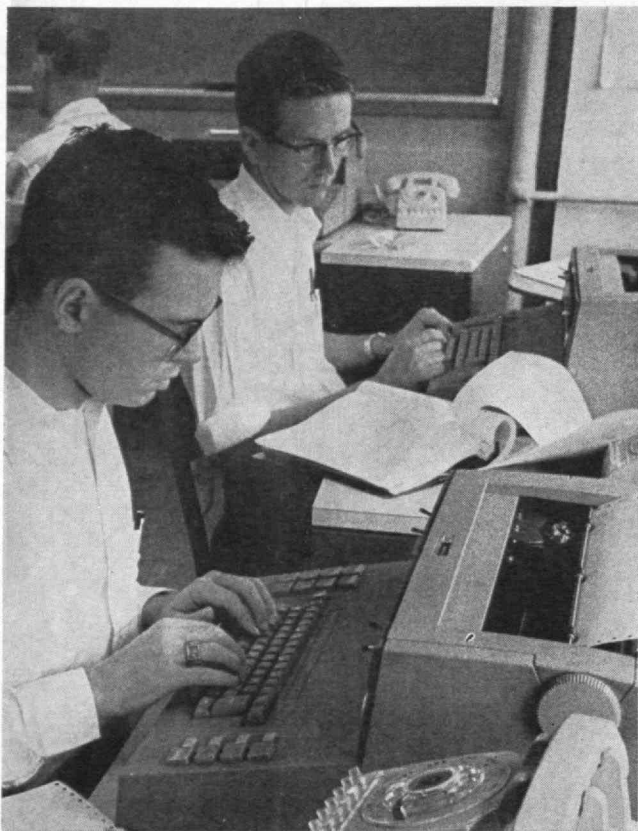
AiResearch
Manufacturing Divisions
Los Angeles • Phoenix

*(Continued from page 34)*

New Time-Sharing Computer

In the 10 years since the establishment of the M.I.T. Computation Center, the number and use of computers have grown rapidly at the Institute. "Few foresaw a decade ago how quickly and extensively computers would take a position of overriding importance in M.I.T.'s many programs of education and research," says President Julius A. Stratton, '23. Computational needs are still expanding and now the Institute will have a new IBM time-sharing computer complex to meet them.

Scheduled to be installed within the next 18 months, the IBM System/360 Model 67 will be a \$6,000,000 computing facility designed specifically for time-sharing



From remote terminals M.I.T. students use a big computer to do homework. Twelve such terminals are available to students.

and capable of serving simultaneously more than 200 persons working with different programs from remote terminals. The machine will be available also to the 51 other New England colleges and universities that participate in the Computation Center.

The special System/360 is expected to be approximately 15 times more powerful than the IBM 7094 system now operating at the Center. The 7094, which the new system will replace, was installed by the company as part of its continuing support dating back to the start of the Computation Center in 1956.

"There are growing pressures on all sides—from both Faculty and students—for expanded computer re-

sources and for convenient access to them," says Dr. Stratton. "Increasingly, M.I.T. has found that computers are influencing the revision of existing subjects of instruction and are stimulating substantial efforts on the part of the Faculty to generate new subjects.

"In many fields, of which civil engineering is an outstanding example, the whole character of instruction is changing because of the availability of a time-shared computer facility. Most of our undergraduates become engaged at one time or another while at M.I.T. in some problem involving the use of computers."

Time-sharing was pioneered at the Computation Center seven years ago and has been pushed forward at M.I.T. under the leadership of Professor F. J. Corbató, '56, Deputy Director of the Computation Center, and his colleagues. Basically, it is a technique by which a computer switches from one problem to another so rapidly that it appears to each user as if he alone were using the computer.

The current time-sharing method allows up to 30 persons to work simultaneously from any of more than 120 terminals already installed throughout the M.I.T. campus and elsewhere in the Cambridge area. They are connected by telephone lines both to the Computation Center machine and to another IBM 7094 at M.I.T.'s Project MAC, where advanced research on time-sharing is being carried forward.

The new System/360 will operate in the time-sharing mode 24 hours a day and will do batch-processing during free time between calls from terminals. It will consist of two central processing units and two memory units each with access times as short as 150 to 200 nanoseconds (billionths of a second). Supporting equipment will include IBM 2314 direct-access storage facilities, each of which can store up to 207 million eight-bit characters and transfer information to the central processing unit at a rate of 312,000 characters per second.

Looking Ahead in Aeronautics

Raymond L. Bisplinghoff gave the third von Karman lecture of the American Institute of Aeronautics and Astronautics last summer and said that speed and efficiency continue to be the goals of aeronautical research.

The V/STOL (Vertical/Short Takeoff and Landing) aircraft, he reports, is "the foremost example of a new vehicle near realization." In addition, he foresees a major advance in improved subsonic passenger jets for short flights and "another revolution" for the personal aircraft.

For the hydrogen-fueled hypersonic transport, Dr. Bisplinghoff finds three main possibilities: As low-cost cargo transportation, as first-stage booster vehicles for launching spacecraft, and in earth-to-orbit aircraft "offering the final closure between atmospheric and orbital flight."

Raymond L. Bisplinghoff, who has been associate administrator for Advanced Research and Technology of the National Aeronautics and Space Administration for the last three years, will transfer this fall to the Office of NASA Administrator James E. Webb as Special Assistant.

(Continued on page 68)

DANSK

DANSK is a growth company. In its short history the sales volume has risen to over five million dollars both in domestic and overseas operations. The growth rate has been between 15% and 20% a year.

DANSK is seeking a man to eventually replace our Vice President. Our present man is 42 years old. He holds an Engineering Degree plus an M.S. in Industrial Engineering and Business Administration. His academic training included courses in Mathematics through Calculus; Statistics; Business Law; Accounting and Auditing. Also, a variety of courses in Business Organization and Management; Applied Science courses in Physics, Chemistry and General Science, as well as courses in Human Engineering, Psychology and Personnel Relations.

We want a shirtsleeve executive. A man capable of defining and stating a problem. A man able to separate the significant from the insignificant; able to determine methods necessary to solve the problem; capable of deciding assistance required for solving the problem—and finally, solving the problem.

This position deals with the general management of the company; working with procurement, production planning and budgetary control. These challenging aspects of the organization will be part of every day routine. A complete familiarity with fiduciary responsibilities is a prerequisite.

The training period will be on a step-up basis beginning with DANSK'S routines and procedures, office programs, computer functions and our overseas operations.

Of necessity, the rudiments and fundamentals of expediting, purchasing and planning will be dwelt on heavily to build a solid understanding of the business. This includes internal procedures, warehouse planning and production, inventory control and production planning.

Following the above, a short period of training in our European office will ensue. Factory visits will be scheduled. During this time our applicant will thoroughly familiarize himself with our Copenhagen (Denmark) office.

Upon returning from Europe, our man in training will work with our Sales Department in order to fully understand DANSK'S total concept and philosophy.

In doing this undoubtedly there will be such challenges as:—

1. *Determining computer efficiency relating to both domestic and overseas operations.*
2. *Revising systems to achieve maximum office output.*
3. *Projecting and planning present, important, routinized activities for possible computerization.*
4. *Developing standards of communication between Mount Kisco and Copenhagen offices to reduce transmission costs and improve the quality of information.*

The end result would be to channel the applicant into the position of Corporate Comptroller.

Because we are looking for a man with top skills, the salary will be considerably above-average for a comparable position.

Write to Edward S. LuBell, Dansk, Mt. Kisco, New York.

(Concluded from page 26)

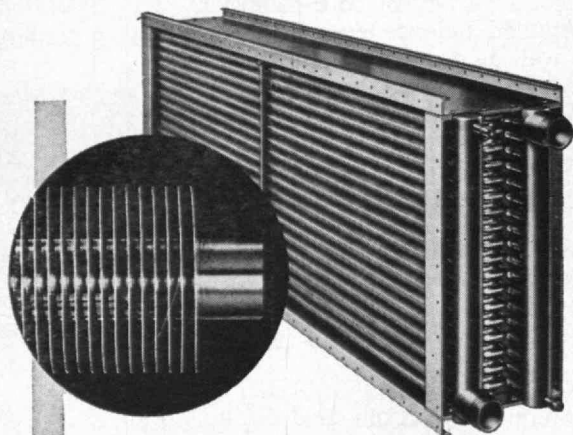
diseconomies dominate. The basic question we shall face in 2001 is how to cope with them, whether through education for self-restraint, regulation or government activity to offset.

There is no need to elaborate. It is obvious what is involved whether one discusses the diseconomies—smog, litter, traffic jams and accidents, stream and river pollution, Route 1 in Maine or between Baltimore and Washington; regulation—planning, zoning, restrictions on road signs and neon lighting, fines for litter which have risen from \$5 to \$50 on the highways but still

fail to inhibit the ejection from automobiles of beer cans, cigarette packages and paper cups; or government expenditure, in housing, sewage disposal, rapid transit systems into cities.

There are external diseconomies in production and in consumption. Stream pollution by a chemical plant is an external diseconomy in production. Laundry hung in the front yard in an attractive neighborhood or the ice cream container heaved from the car window is an external diseconomy in consumption. At this stage, we are readier to attack the diseconomies in production though we have a long way to go. We shall have to spend more on diseconomies in consumption—on picking up the trash along the highways and requiring the sloppy neighbor to paint his peeling house.

But one external economy in consumption is hard to do anything about: children. Children may be regarded as a durable consumers good and substituted in a family's expenditure for other durable goods, for soft goods like urban pleasures, or for savings. Up to a certain point, children of others are an external economy for me and mine; they provide them companionship, intellectual stimulus and competition, marriage partners. But beyond that point, these children are an external diseconomy: they crowd the schools, universities, summer resorts, Paris cafés and even the north woods. In the next generation they will want housing in new suburbs cut out of old farms. The high-priced resource of 2001 is going to be not water, but privacy.



AEROFIN

**Smooth-Fin Coils
offer you:**

**Greater Heat Transfer
per sq. ft. of face area**

**Lower Airway Resistance
—less power per c. f. m.**

AEROFIN CORPORATION

101 Greenway Ave., Syracuse 3, N.Y.

Engineering Offices in Principal Cities

The Nub of It

Mankind's goal, Chairman Killian reminded the 1965 Alumni Seminar's closing session, is to achieve loyalty to the human race. Professor Katz noted that "at the heart of scientific thought is the idea that all phenomena are related." Professor von Arx emphasized that man has become a force of nature, and Dean Wiesner that humans "are all part of a cybernetic system." Professor Mazlish concluded that science is the one domain "that gives us a sense and hope that we can control our destiny."

"Our challenge," said Dr. von Arx, "is how best we may live with ourselves in our world."

JOHN A. VOLPE CONSTRUCTION CO., INC.

Builders

Malden, Massachusetts

Washington, D.C.

Miami, Florida

JOHN A. VOLPE

FRANK MARCUCELLA '27

S. PETER VOLPE

Why do so many corporations contribute to America's colleges?

1. () they want to help the colleges

2. () they need the leaders colleges train

You were right if you checked No. 2.

American corporations want to make sure there will be enough college-trained leaders to fill the management jobs open today and in the future.

This is good insurance for business.

And the need, we must remember, isn't getting smaller.

World trade is developing fast; business is getting more competitive, more complex; science is introducing new products and processes rapidly.

College-trained men and women are needed, in increasing numbers, to plan and direct the activities of business.



Published as a public service in cooperation with The Advertising Council and the Council for Financial Aid to Education

But the colleges can't do the training job alone. They need classrooms, laboratories and facilities, yes. But even more, they need backing to maintain a staff of top-notch teachers.

This is the human equation that makes the difference in reaching the **margin of excellence** needed in the U.S.

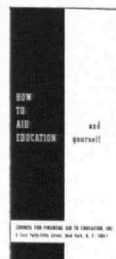
This is everybody's job, but especially industry's.

Of course American business wants to help the colleges, so you were also right if you checked No. 1. College, after all, is business' best friend.

GIVE TO THE COLLEGE OF YOUR CHOICE.

SPECIAL TO CORPORATE OFFICERS—A new booklet, of particular interest if your company has not yet established an aid-to-education program. Write for:

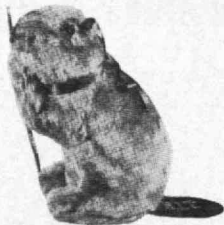
"How to Aid Education—and Yourself"
Box 36, Times Square Station
New York 36, N. Y.





On the twelfth day of Christmas . . .

Here is a partial list of 3
M.I.T. merchandise for
Christmas gift considera-
tion from the Tech Coop,
located in the new M.I.T.
Student Center. The cou-
pon below is for your
mail order shopping con-
venience. Shortly, Alum-
ni members will receive
the complete Christmas
Catalogue.



M.I.T. Beaver

Official Tech mascot . . . soft
and cuddly grey plush with
ears and tail of red with red
ribbon collar. 12" high. 3.85

1 M.I.T. Chair



A fine adaptation of the tra-
ditional Corporation chair of
President William Barton Rog-
ers . . . sturdily made of
hardwood . . . finished in
black with trim and seal in
gold. 32.50

Delivery approximately 30
days. Shipped express collect
from Gardner, Mass.

2 Cushions

For M.I.T. Chairs

A luxurious 2" foam cushion
covered in long wearing grey
and maroon Dura-leather.

11.00

4



Tech Hi-Ball Glasses

Each glass of 10 oz. capacity
shows a two color Tech Seal.
Set of 12. 5.95

5 & 6

Tech Glassware

This attractive, quality glass-
ware with a white etched seal
and a platinum rim will make
a distinctive appearance for
any occasion—as a gift or to
use yourself.

Hi Ball	10.50 doz.
Old Fashion	10.50 doz.
Cocktail	10.50 doz.



7 M.I.T. Towel

Big size, 36 x 66, White towel
with the Tech identification in
red. It is of excellent quality
and very absorbent. 3.98

2 for 7.50

10



Sweat Shirts

These white or grey cotton,
fleece-lined sweat shirts have
the Tech identification. Built
for men, but the girls like
them too. Sizes: S-M-L-XL.

2.50

8 Coasters

Each coaster has the Tech
Seal in two-tone bronze. Out-
standing Mason quality with
exclusive drip-proof inner rims
and footed. Set of 8. 5.95

9



Tech Playing Cards

These cards have a Cellutone
finish and are gift boxed. The
backs show the Tech Seal as
illustrated. 2 pack set 2.95

11 M.I.T. Mug

Gleaming white pottery mug
of outstanding quality. Raised
metal crest in gold finish.
Height 6". Capacity 10 oz.

4.95

12 M.I.T. Bookends

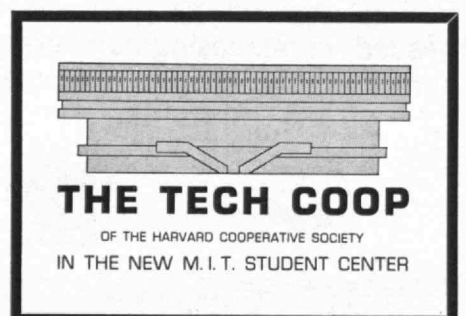
These heavy and attractive
bookends have a 5½ inch
Tech Seal in bronze and will
prove a handsome accessory
for any table or desk. 18.95

Mailing Charges: Free in New England; East of Mississippi, 35¢ per order; West of Mississippi,
50¢ per order; (Double charge on items 4, 5, 6).

TO THE TECH COOP

Please send me the items I have checked:

<input type="checkbox"/> 1.	<input type="checkbox"/> 7.	Name _____
<input type="checkbox"/> 2.	<input type="checkbox"/> 8.	Address _____
<input type="checkbox"/> 3.	<input type="checkbox"/> 9.	_____
<input type="checkbox"/> 4.	<input type="checkbox"/> 10.	_____
<input type="checkbox"/> 5.	<input type="checkbox"/> 11.	Coop Number, if Member _____
<input type="checkbox"/> 6.	<input type="checkbox"/> 12.	<input type="checkbox"/> Check <input type="checkbox"/> Charge



Authors' day November 1, 1965

All alumni are cordially invited to attend the first of a series of semi-annual Authors' Days to be held at the Tech Coop in the new M.I.T. Student Center on Monday, November 1st, from 10 A.M. to 4 P.M. John Wiley & Sons, Inc., will honor its authors on the M.I.T. faculty. If you're in the area, don't miss the opportunity to see this double feature: the new Student Center and the Authors' Day program.

NOW More Than Ever . . . The Tech Coop is your best source for scientific and technical books.

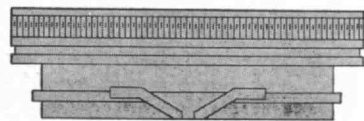
With its brand new, expanded facilities the Tech Coop now provides more convenience, a large selection of quality merchandise, and a greater variety of books to all its customers. Add to this a restaurant, bowling alley, optical service, barbershop, and post office—all under one roof, and you've got the finest one-stop shopping area for miles around. And the Tech Coop still offers a 10% annual dividend on all items purchased (8% if charged) to all its members.

FREE Customer Parking on Saturdays . . . Christmas shoppers take note!

Special parking facilities on Saturdays only have been arranged with the M.I.T. authorities, and an invitation is extended to all to visit and shop in this new facility. The West Parking Lot, adjoining the Kresge Auditorium, and the West Garage, on Vassar Street next to the Student Center, are available to Co-op members.

Once inside, you can browse at your leisure over a choice selection of fine Christmas gifts and other quality merchandise.

For convenience, quality and economy, you can't beat the Tech Coop. Don't forget your membership. It's worth more than ever now.



THE TECH COOP

OF THE HARVARD COOPERATIVE SOCIETY
IN THE NEW M. I. T. STUDENT CENTER

NORCROSS Process Control VISCOMETERS

with the Falling Piston ►

*Principle proven by 20 years
experience with Newtonian
and Non-Newtonian liquids*

MEASURING ELEMENTS

for open or closed tanks and
for pipeline applications

RECEIVERS

for indicating or Recording
with or without Controls or Alarms
Electric or Pneumatic Control

COMPLETE VISCOSITY CONTROL SYSTEMS

NORCROSS VISCOMETER Applications:

Solvent Control - Polymerization Processes
Starch Processes - Blending Processes

**DIRECT TANK MEASUREMENT—EASY TO INSTALL & USE
RUGGED • CORROSION & EXPLOSION PROOF • ACCURATE**

Austin S. Norcross, '29 Frederick J. Elmert, '32 Robert A. Norcross, '51
for full details write Dept. A-69

NORCROSS CORPORATION

NEWTON 58, MASSACHUSETTS

Representatives in Principal Cities and Foreign Countries



HE TREND OF AFFAIRS

(Continued from page 62)

The Library of 1975

The well-fill'd shelves of university libraries can be made more useful by a computer-based information transfer network, scholars assembled at Woods Hole, Mass., last summer reported. Under Professor Carl F. J. Overhage's direction, they outlined a four-year research program to be undertaken within the M.I.T. School of Engineering. It will be a multimillion dollar effort, for which the Carnegie Corporation already has provided \$250,000.

By 1975, Professor Overhage believes, a system can be devised that will enable students and scholars not only to locate books and documents in the library but also to gain access to the university's total information resources, through touch-tone telephones, teletypewriters, television-like displays, and quickly made copies.

"The users of the network will communicate with each other as well as with the library," he says. "Data just obtained in the laboratory and comments made by observers will be as easily available as books in the library or documents in the departmental files."

"The information traffic will be controlled by means of a time-shared computer utility on the campus in much the same way that verbal communications are handled by the campus telephone exchange. Long distance service will connect the university's information transfer network with sources and users everywhere."

The Woods Hole planning conference, held in the National Academy of Sciences' Summer Studies Center, was made possible by a grant of nearly \$200,000 from the Independence Foundation in Philadelphia. Seventy-six authorities representing libraries, science, engineering, government, and industry as well as universities participated. Their recommendations will be published by The M.I.T. Press and will guide the M.I.T. research program which will be known as Project INTREX (for Information Transfer Experiments).

Three areas of current development must be merged, the conferees found, to meet the library crisis. One is mechanization and automation of traditional library procedures. Another is the emergence, mainly under federal government sponsorship, of national information centers dealing with specific areas of study, e.g., medicine, chemistry, space science, etc. And the third is the development of the large-scale, time-shared central computer which can be used by many persons simultaneously.

"It is by combining advances in all three areas," Professor Overhage said, "that INTREX hopes to evolve an information transfer network in which users will be able to interact with recorded knowledge in storage and with each other."

M.I.T., Professor Overhage said, will be a useful setting for INTREX experimentation because of the university's deep involvement in science and engineering and the consequent problems in library management. As a first order of priority, the planning conference recommended that INTREX choose, as a model for study, one of the interdisciplinary subfields of sci-

FLETCHER

g r a n i t e

for

Bridges and Buildings

Street and Highway Curbing

Vertical Curb With Sawn

Top & Bottom

ASHLAR VENEER

for

Bridge Facing

Landscape Paving Blocks

Roofing & Sanding Granite Grit

•
Brochure will be mailed on request
•

H. E. FLETCHER CO.

Quarry

WEST CHELMSFORD, MASS.

TEL. CODE 617-251-4031

114 EAST 40TH STREET, NEW YORK, 16, N. Y.

AREA CODE 212-697-4131

ence or engineering, and program into M.I.T.'s large-scale time-shared computer system an "augmented catalog" covering at least 50 per cent of the literature now existing in the selected field. This catalog data would be far more extensive than now appears on traditional library cards and would be highly flexible and adaptable to the desires of the users. Which subfield of interdisciplinary study will be selected for augmented catalog experimentation was not determined.

A second major recommendation was that INTREX explore the varieties of ways in which users can make contact with data stored in an information transfer network system—printed paper, microfilm, magnetic tape, oscilloscopes, xerography, film projection, etc.—and come up with a balanced system of access to meet the demands of all users. The conferees agreed that library users in the future should not have to go to a central storage point to check out books and magazines, but should have access to the information through terminals located near their offices, laboratories, or homes.

The conference also recommended a major program of experiments aimed at integration of a university network with one or more of the existing national information centers, and experimentation in programming knowledge directly into a central time-shared computer. Other areas of experimentation suggested by the planning conference included computer-aided classroom teaching, "browsing" systems, and methods of automatically informing users when new data appear relating to their particular areas of interest.

(Concluded on page 71)

- **Rugged Electrical Wiring Devices**
(outlets, switches, plates, caps and connectors)
- **Cold Formed Machine Screws and Special Fasteners**
- **Custom Molded Plastic Parts**
- **Outdoor Lighting Fixtures**
- **Mechanical Holding Devices**



HARVEY
HUBBELL
INCORPORATED
Bridgeport, Connecticut

PAUL E. DUTELLE, INC.



**Roofers & Sheet Metal
Craftsmen**



**153 PEARL STREET
NEWTON 58, MASSACHUSETTS**

Why MAKEPEACE

BECAUSE Makepeace is New England's largest distributors of professional equipment for architects, engineers, draftsmen, etc.

BECAUSE you can rely on Makepeace for quality and service.

BECAUSE Makepeace has a complete line of



**PRECISION INSTRUMENTS
and EQUIPMENT**

BECAUSE Makepeace has New England's most modern and complete reproduction facilities for blueprints — photostats — 105 mm micro master.

BECAUSE it's nice to do business at Makepeace.



Tel. 267-2700

B.L. MAKEPEACE INC.
1266 Boylston St., Boston, Mass. 02215

PROFESSIONAL CARDS

JACKSON & MORELAND

DIVISION OF UNITED ENGINEERS & CONSTRUCTORS INC.

Engineers and Consultants

BOSTON, MASSACHUSETTS

EADIE, FREUND & CAMPBELL

Consulting Engineers

500 FIFTH AVENUE

NEW YORK, N. Y. 10036

*Mechanical—Electrical—Sanitary
Air Conditioning—Power—Process Layouts*
James K. Campbell '11

METCALF & EDDY | ENGINEERS

BOSTON • NEW YORK • PALO ALTO

THE KULJIAN CORPORATION

Engineers • Consultants

UTILITY • INDUSTRIAL • CHEMICAL

Power Plants (Steam, Hydro, Nuclear), Public
Works, Processing Plants, Oil Refineries, Textile
Plants, Institutions, Highways, Expressways,
Airports & Facilities, Military Installations.

H. A. KULJIAN '19

E. J. HEALY '24

A. H. KULJIAN '48

1200 NO. BROAD ST., PHILADELPHIA 21, PA.

LOOMIS AND LOOMIS

consulting professional engineers

STRUCTURES

FOUNDATIONS

WINDSOR

CONNECTICUT

FABRIC RESEARCH LABORATORIES, INC.

Research, Development, and Consultation

In the Fields of Fibrous, Organic, and Related Materials

1000 Providence Highway

Dedham, Mass.

(At Route 128 and U.S. 1 Interchange)

W. J. HAMBURGER, '21 K. R. FOX, '40 E. R. KASWELL, '39 M. M. PLATT, '42

SOIL TESTING SERVICES, INC.

Consulting Soil and Foundation Engineers

Site Investigations

Foundation Recommendations and Design

Laboratory Testing, Field Inspection and Control

111 Pfingsten Road

Northbrook, Illinois

CLYDE N. BAKER, JR. '52

SYLVIO J. POLICCI '56

FAY, SPOFFORD & THORNDIKE, INC.

Engineers

Airports, Bridges, Express Highways
Water Supply, Sewerage and Drainage Systems
Port and Terminal Works
Industrial Plants Refuse Disposal

11 Beacon Street

Boston, Mass. 02108

CAPITOL ENGINEERING CORPORATION

Consulting Civil Engineers

DILLSBURG, PENNSYLVANIA, U.S.A.

ROBERT E. SMITH '41, President

MAURICE A. REIDY ENGINEERS

Foundations and Soil Mechanics

Structural Designs • Buildings • Bridges

101 TREMONT STREET

BOSTON 8, MASS.

CHARLES NELSON DEBES ASSOCIATES, INC.

Engineers and Consultants

Structural, Electrical, Mechanical, Acoustical
Industrial, Commercial and Municipal Projects

915 EAST STATE ST.

ROCKFORD, ILL.

C. N. DEBES '35

MUESER, RUTLEDGE, WENTWORTH & JOHNSTON

Consulting Engineers

Foundations for Buildings, Bridges and Dams;
Tunnels, Bulkheads, Marine Structures, Soil Studies and
Tests; Reports, Design and Supervision

WILLIAM H. MUESER '22

PHILIP C. RUTLEDGE '33

415 Madison Ave., New York 17, N. Y.

BREWER ENGINEERING LABORATORIES

Consulting Engineers

*Electric Strain Gage Testing • Stress Analysis
Structural Model Testing • Structural Testing
Vibration Analysis • Strain Gage Switches
Ground Support Mechanism Design*

MARION, MASS.

TEL. 617-748-0103

G. A. BREWER '38

J. D. INGHAM '43

CLEVERDON, VARNEY AND PIKE

Consulting Engineers

Structural

Heating and Ventilating

Electrical

Air Conditioning

Civil

Plumbing

120 TREMONT STREET, BOSTON, MASS. 02108



(Concluded from page 69)

Materials Center Dedicated

M.I.T. dedicated its new Center for Materials Science and Engineering on October 1 and named the building for Vannevar Bush, '16, Honorary Chairman of the M.I.T. Corporation. James R. Killian, Jr., '26, announced the honor for Dr. Bush as "a salute to a colleague who has made immense contributions to science and engineering, to M.I.T., and to the nation." Dr. Bush's career as engineer, inventor, and wartime science administrator emphasizes the continuum of basic and applied research, said Dr. Killian.

William O. Baker, Vice-president—Research, Bell Telephone Laboratories, was principal speaker at the dedication. About 100 scientists, engineers, and guests

attended the ceremonies in Kresge Auditorium and heard addresses also by President Julius A. Stratton, '23, Dean Gordon S. Brown, '31, of the School of Engineering, and Dean Jerome B. Wiesner of the School of Science.

The dedication was preceded by a two-day scientific symposium on materials research under the chairmanship of Robert A. Smith, Director of the Center. Speakers at the symposium included Harold Brown, Secretary of the Air Force, and William Shockley, '36, Nobel laureate.

The Bush Building is the largest single structure for academic purposes that M.I.T. has built in 50 years and is the first step in the development of the Institute's north campus. It houses some 40 groups of Faculty and students representing such academic Departments as Metallurgy, Electrical Engineering, Mechanical Engineering, Architecture, Physics, and Chemistry.

In next month's Review, Dr. Smith and his associates will report on the building and its laboratories and on a new phase in materials research at M.I.T.

*Selenar and thalassar
mechanisms
Turric, alphanumeric*

WILLSEA WORKS

ROCHESTER, N.Y. 14605

ALEXANDER KUSKO, INC.

Consulting Engineers

141 Main Street Cambridge 42, Mass.

ELiot 4-4015

Research and Development in

Magnetics	Semiconductor Circuits
Electric Machinery	Control Systems
Instrumentation	Power Supplies

A. KUSKO '44

E. A. PARKER, JR. '42 C. A. RAMSBOTTOM '55

EDWARD R. MARDEN CORP.
Builders Engineers



■ EDWARD R. MARDEN '41
PRESIDENT
Registered Professional Engineer

280 Lincoln Street
Allston, Mass.
782-3743

MAIN
CHAS. T. MAIN, INC.
Engineers

• Studies and Reports • Design
• Construction Management

Industrial Plants • Textile Mills • Pulp and Paper • Graphic Arts • Thermal Power • Hydroelectric Power • Power Transmission • Nuclear Facilities • Industrial Process

441 STUART STREET, BOSTON, MASS. 02116, TEL. (617) 262-3200
1301 E. MOREHEAD ST., CHARLOTTE, N.C. 28204, TEL. (704) 375-1735

William H. Coburn & Co.
INVESTMENT COUNSEL
BROKERS

WILLIAM H. COBURN '11

PARKE D. APPEL '22

68 Devonshire Street
Boston, Mass. 02109

Telephone:
227-5964

SYSKA & HENNESSY, INC.

Engineers

John F. Hennessy, '24

John F. Hennessy, Jr. '51



DESIGN	•	CONSULTATION	•	REPORTS
MECHANICAL	•	ELECTRICAL	•	SANITARY

VERTICAL AND HORIZONTAL TRANSPORTATION

729 Boylston Street Boston, Mass.	144 E. 39th Street New York, N.Y.	1155 15th Street, N.W. Washington 6, D.C.
--------------------------------------	--------------------------------------	----------------------------------------------

IDEA MAN

How thirty-six words Paid off to the Tune of Six Thousand Dollars!

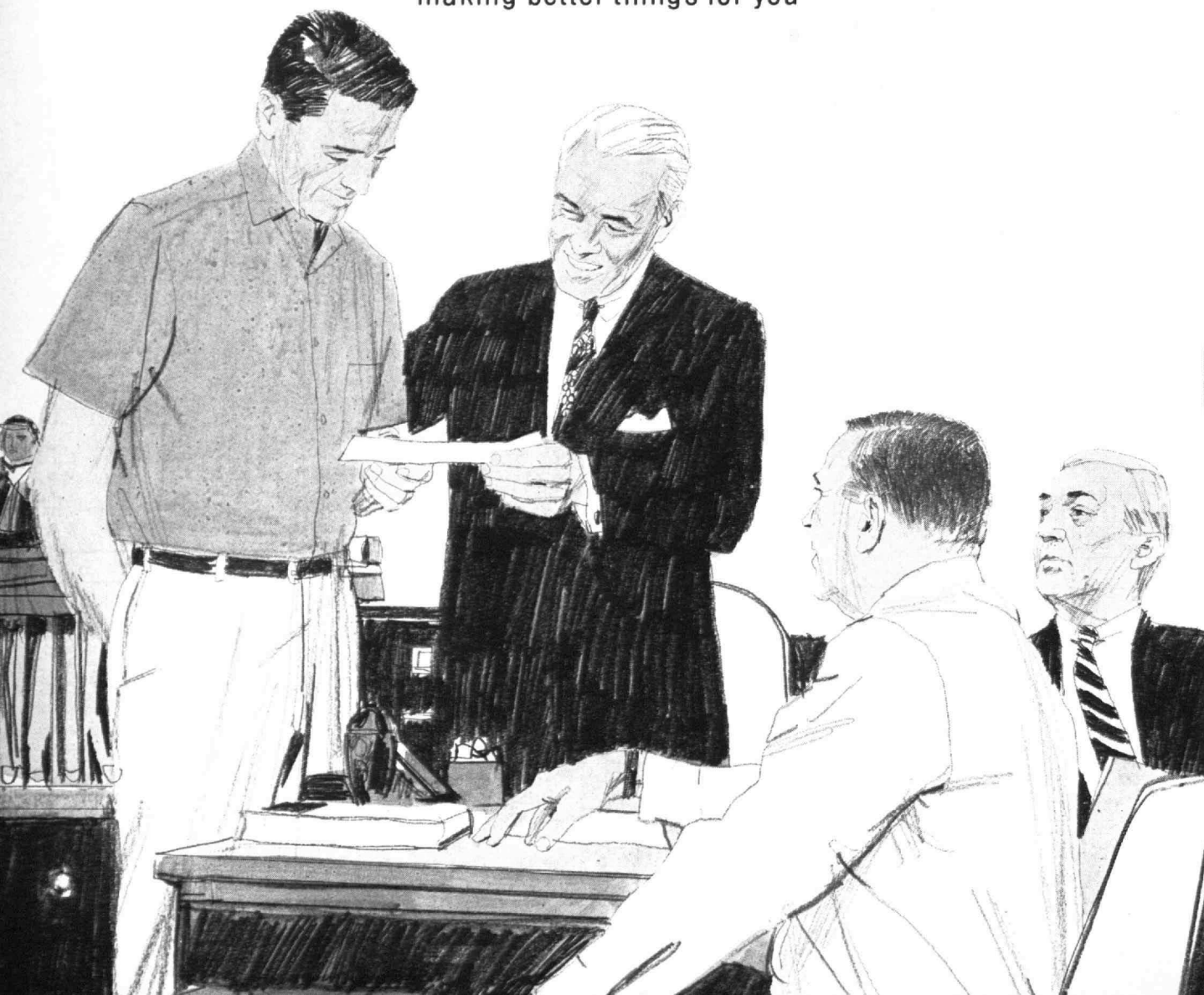
No, he didn't dream up a better mousetrap. But he's the kind of person who probably could if he put his mind to it. As the old maxim implies, though, if you figure out a way to do *anything* worthwhile more efficiently, chances are you'll be rewarded. It was certainly true of this ingenious General Motors employee, who recently collected \$6,000 for a valuable suggestion that took just thirty-six words to describe—more than \$166.00 per word!

The GM Employee Suggestion Plan has paid out more than \$70,000,000 and produced more than a million usable suggestions since its inception in 1942. It is worth noting that a great many awards go to conscientious employees who would have submitted their suggestions even if there had been no monetary reward involved.

Whatever their jobs, these are among the real stars of the General Motors team—people who are truly interested in finding ways to make products and processes safer, better and more efficient.

General Motors Is People...

making better things for you



Class News



'95

This is our special request to each of you ten members. Please send your name and present mail address to **A. D. Fuller**, '95, c/o Technology Review, Room E19-430, M.I.T., Cambridge, Mass. 02139

'96

At the May meeting of the Alumni Council, Dr. Benson R. Snyder, Psychiatrist-in-Chief of the M.I.T. Medical Department, was speaker.

At the M.I.T. Alumni Day Luncheon, **Myron Pierce**, **Driscoll** and his daughter, Martha, sat with Taylor '94, Dawes '98 and Sherrill '99. We missed **Robert Davis** and his wife who were unable to attend. In the late summer, upon my return from the Cape, I called on Davis and found him very well. Mrs. Davis has trouble with arthritis, and this kept them from attending the Alumni Day Luncheon.

At the Sixth Conference of the Alumni in September, Chairman of the Corporation **James R. Killian** refuted the sentiments expressed in the February issue of Harper's Magazine, "Is There a Teacher on the Faculty?" I recalled the appeal of President Walker who said "There is a demand for teachers; consider a career in teaching." In looking through the names A-E in our Yearbook, I found a dozen engaged in teaching; it is obvious that President Walker's appeal was heeded. Killian told us that at M.I.T. teaching is still a primary consideration. —**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline, Mass.

'97

It is good to report that one of you, **Will Binley**, is active and represented us on the occasion of the June Reunion. He wrote also on July first as follows after regretting my absence.

"There were a few '96, '98, and '99 men at my end of the table. Any '97 men will soon be at the end of the line. It was a very fine occasion. I had my granddaughter with me, and she was much impressed by the big changes in M.I.T. I spent the winter in Florida, after undergoing an operation last November. I am slowing up although still driving my car. I live alone with two little dogs and a parrot. I shall try to enjoy a fine summer in New England."

He hoped to come to New York, and to see the World's Fair, also to see me. My hope is that he will come to New York, also that the little dogs "can understand the parrot." . . . Also has come news from the Alumni Office that **Proctor Dougherty** has changed his Washington residence. . . . Why don't some of you other 90-year-old youths emulate **Will Binley**, at least to the extent of writing your "Acting Secretary," **George R. Wadleigh**, 70 Flower Avenue, Hastings-on-Hudson, N.Y.

'98

In lieu of flowers for the church services and with other contributions, \$140 was given for the **Edward S. Chapin Alumni Fund**, in itself, a nice memorial for Ed.

The Alumni Council, which is the governing body of the Alumni Association, appointed a committee which included our **Prof. Joe Riley** as chairman and your Secretary, **Fred Jones**, to draw up a resolution paying tribute to **Ed Chapin**, former '98 Class Representative on the Council. The Resolution was presented by Joe, who was seated at the head table, at the May 24th meeting of the Council held at the M.I.T. Faculty Club in Cambridge. It was accepted with a standing silent vote. A copy of the Resolution was transmitted to Ed's daughter, Mrs. Holden Furber, and to his sister, Miss Marion Chapin. We will not take up space here to include the Resolution in the Class Notes as it is, in large part, a review of Ed's activities in his profession and as outlined in the July Class Notes, but it is pertinent to add here that the Resolution was entirely the work of Joe, that it included some reminiscences typical of Ed and those former days at the Institute and that it was very favorably received and spoken of by those present at the meeting of the Council. Joe is to be congratulated on such a very excellent article.

The '98 class members attending the June Alumni Reunion were **Fred Dawes** and **Fred Jones**. The guests were Mrs. Arthur Blanchard, Miss Marion Chapin, Mr. and Mrs. Holden Furber and Mrs. Harold (Audrey) Jones. This is the smallest attendance we have ever had at any Alumni Reunion. Nevertheless all had a pleasant and enjoyable time, in spite of the rain that fell in the afternoon. Some of us, in the morning, viewed the colored movie of Maj. White's walk in space. The showing of this spectacular achievement was made possible through special arrangements with NASA. The traditional noon luncheon under the tents was, as

Happy Birthday

During October one alumnus celebrated his 100th birthday; in November two alumni reach 95 and three become 90 years old. In October and November, 15 and 30 alumni mark their 85th and 80th birthdays, respectively, as listed below with dates of birth.

October, 1865—**CHARLES L. FAUNCE**, '88, on the 3rd.

November, 1870—**CHARLES M. STAMP**, '96, on the 3rd; **EDWARD A. PORTER**, '93, on the 30th.

November, 1875—**HENRY C. MORRIS**, '00, on the 1st; **CHARLES F. HARWOOD**, '99, on the 7th; **MRS. SYDNEY M. WILLIAMS** (Mary Peele Hunnewell), '06, on the 17th.

October, 1880—**GEORGE R. SPALDING**, '04, on the 5th; **ROGER D. BABSON**, '03, on the 7th; **CHARLES B. MAYER**, '05, on the 12th; **KENNETH C. GRANT**, '02, and **ARTHUR F. MOHAN**, '08, on the 15th; **JAMES W. WELSH**, '03, on the 20th; **GEORGE B. HARDY**, '05, on the 2nd; **C. DEAN KLAHR**, '05, on the 26th; **CHARLES W. FISHER**, '06, and **CARLE HAYWARD**, '04, on the 27th.

November, 1880—**NORMAN E. BORDEN**, '02, on the 4th; **J. RUSSELL JONES**, '03, on the 15th; **ALICE F. BLOOD**, '03, on the 25th; **WILLIS S. CAYPLESS**, '06, on the 27th.

October, 1885—**RIDGWAY M. GILLIS**, '10; **HUDSON B. HASTINGS**, '07, on the 1st; **CORNELIUS A. DUYSER**, '12, on the 4th; **DONALD G. ROBBINS**, '07, on the 5th; **HERBERT A. STEVENS**, '07, on the 7th; **GEORGE H. GRAY**, '09, on the 8th; **ARMAND H. PEYCKE**, '11, on the 10th; **RICHARD G. TYLER**, '10, on the 16th; **WALTER C. SLADE**, '12, on the 18th; **HORATIO HUGHES**, '10, on the 20th; **RALPH G. KANN**, '07, and **EDWARD T. WILLIAMS**, '09, on the 22nd; **ROBERT AMORY**, '08, on the 23rd; **HENRY V. SPURR**, '08, on the 24th; **HARRY R. HALL**, '07, on the 25th; **HOWARD F. CLARK**, '12, and **ALBERT L. MESSER**, '08, on the 28th; **MRS. MAYO TOLMAN**, '11, on the 29th; **FRANK A. CASEY**, '09, on the 30th.

November, 1885—**JOHN C. STEVENS**, '09; **ROSS H. RATHBUN**, '12, on the 1st; **HOWARD P. BARNES**, '06, on the 5th; **JOHN P. MINTON**, '12, on the 7th; **LEO LOEB**, '08, on the 12th; **DAVID J. GUY**, '12, on the 14th; **HENRY C. COLSON**, Jr., '09, on the 18th; **SALVADOR E. ALTAMIRANO**, '09, on the 20th; **JOSEPH GERSBERG**, '11, on the 23rd; **GEORGE S. WITMER**, '09, on the 26th.

usual, the feature event. At the luncheon, President Stratton's address featured the recent big year in the Institute's history with its new buildings, new curricula, and new ideas in education.

In the '98 Class Notes for last June we mentioned the decease of our Course 1 classmate **Carl S. High**. We were not successful in obtaining further information from the estate but were informed by Johnson and Sons, Funeral Directors, that Carl passed away in Partridge, Kansas, on July 24, 1964, and was buried in Partridge Cemetery. The Kansas newspaper, The Hutchinson News, which carried the obituary, advised that the edition

of that time, approximately a year ago, was no longer retained in their files.

We received from our classmate, Fred Dawes, some time ago, but too late until now for insertion in the Class Notes, a clipping from the Hudson, Mass., Daily Sun, dated April 30, 1965. This clipping reads in part, "Two of Hudson's leading senior citizens, Capt. Fred Dawes, 90, and Jessie Sharon, 97, will be honored this Saturday night at the pre-centennial banquet to be held at the State Armory. They will be special guests at the head table with Congressman Philip Philbin (D-Clinton), Mayor Kusun Haddad of Marlboro and Recreation Director Louis Ghiloni also of Marlboro. Tax Collector William Kerrigan, ticket chairman, reported that over 400 are expected to attend. After the cocktail hour and banquet, entertainment will follow, consisting of songs by the Sweet Adelines and community singing led by Walter Campbell. The Centennial Song will be presented and the Centennial Poem recited during the entertainment. Music for the entertainment and dancing will be supplied by James Garcia's orchestra." An excellent picture of Capt. Fred Dawes was included in the clipping. Congratulations, Fred. The honor tendered you was well deserved on account of your long service to the community.

Upon inquiry we learned from the registrar of vital statistics of Millburn, N. J., that our Course 1 classmate, **Ralph R. Rumery** of #11 Barberry Lane, Short Hills, N. J., passed away on March 11, 1965. The Registrar very kindly forwarded an obituary notice clipped from the Millburn and Short Hills Item, a New Jersey weekly, from which we quote: "Funeral services for Ralph R. Rumery, 89, were held Monday (March 15) from Smith and Smith Suburban, Springfield, with a service at 11 A.M. in Christ Church in Short Hills. Mr. Rumery was a retired consulting engineer and a former treasurer of the Millburn Free Public Library. He was graduated in 1900 from Harvard College with a degree in civil engineering. Ten years later he established his own consulting engineering business in New York. He retired in 1955. Mr. Rumery was named to the library board in 1943 for a five-year term and reappointed in 1948. He resigned in September, 1950. He also was a trustee of the Short Hills Country Day School. Born in Portland, Maine, he had lived here for 51 years. He was a member of the American Society of Civil Engineers, Sons of the American Revolution in Portland, the Short Hills Club and the Baltusrol Golf Club. He leaves two sons, Richard G. of 52 Jefferson Ave., Short Hills, and John R. of Gilbertsville, N.Y.; a sister, Mrs. Marguerite Chapman of Portland and five grandchildren." Ralph's was a full life. He had many friends, particularly among the older residents of Short Hills. Your Secretary has extended the sympathy of the class to his family through his son Richard.

On learning that **Walter Page**, our Course XIII classmate, was living at #410 Loves Lane, Wynnwood, Pa., and that this address was not too far from Gradyville, Pa., the home of Mr. and Mrs.

Holden Furber, we asked Elizabeth Furber, our late Class President's daughter, to try and contact Walter by phone. Elizabeth, who is always very co-operative, did just that and reports as follows, "Walter sounded hale and hearty over the phone. He is 'single' since losing his wife a few years ago. He has not been to a class reunion for 40 years, since he was too busy bringing up his family. He is really of the class of '97, as he took only an extra course in '98 and so has not answered the class letters." Thank you, Elizabeth, for getting this message through.

Al Davis of Waterbury, Conn., continues to send to us some of his home-made charades. The May issue of the Review included an edible enigma, as he called it, which reads as follows: "Cut off my head and singular I act. Cut off my tail and plural I appear. Cut off both and 'tis a ponderous fact; my middle stays, yet there's nothing here." No one sent in the answer. Here it is—COD. Pretty clever, Al. Here is another one for the class to puzzle over: "In my first my second sat. At my third and fourth I eat. My whole should never be high-hat; but generous and sweet."

We have the following new address as of June 18, 1965: **Edward T. Foulkes**, 7 Camino Lenada, Orinda, Calif. 94563.—**Frederic A. Jones**, Secretary, 286 Chestnut Hill Ave., Brighton, Mass. 02135.

'99

Lewis B. Abbott, IV, was born on June 27, 1878, and died June 28, 1965. After a year of graduate study at M.I.T., Lewis became a member of the distinguished Boston firm of Coolidge, Shepley, Bulfinch and Abbott. He was chief architect for a number of buildings for Harvard, Northeastern University, banks, office buildings and hospitals and specialized in planning and administration. He was a member of the Boston Architectural Center, the Massachusetts Association of Architects, the American Institute of Architects, and was a registered architect in New York and Massachusetts. **Francis M. Bingham, IV**, was born in Taunton February 15, 1876, and died May 31, 1965. Francis was accountant and paymaster for the Towle Manufacturing Company, silversmiths of Newburyport, Mass., until his retirement about 10 years ago. He leaves two sons, Gordon M. and Raymond H., both of Newburyport and two daughters, Mrs. Rupert A. Nock of Newburyport and Mrs. Charles Wesley Jacoby of Sheboygan, Wisc. **Norman E. Seavey, Carroll W. Brown** and **Percy W. Witherell** enjoyed the reunion in June. **Hervey J. Skinner** had intended to come but was prevented by inclement weather. The illness of our beloved Class Representative, **Miles S. Sherrill**, precluded his presence. Cards may be sent c/o Everett A. Sherrill, 16 Downing Road, Brookline 46, Mass. . . . **Frederick W. Grover** was exploring the irrigation systems around the Nile, checking the accuracy of the descriptions of the pyramids. As an as-

tronomer he was interested in the ruins of the Temple of Karnak. He descended 300 feet of steps into the tomb of Ramesses VI. The climb back was strenuous, so on his return he walked around a 9-hole golf course twice a day at Moosehead Lake. At the Alumni Officers Conference in September the class was represented by the President, Norman Seavey, and the Secretary, Percy Witherell. Only James Driscoll, '96, was older. More than 400 were present and were thrilled by the new building construction in process. The Coop in the new Student Center has several large departments of about everything a student may need. The book department displays cover very broad fields of knowledge. The new curricula now under study by the deans of the five schools of engineering, architecture and planning, Sloan School of Management, Humanities and Social Studies, and Science will stimulate the creative spirit among all students from undergraduate through post-doctoral, and will help the pioneering programs of M.I.T.'s interests in world affairs.—**Percy W. Witherell**, Secretary, 1162 West St., Wrentham, Mass.

'00

The usual small group of Class members attended the Alumni Day Luncheon last June. This constituted the only celebration of our sixty-fifth anniversary. Those present were Charles and Alice Newhall, Charles and Elsie Smith, Stanley Fitch, Percy Ziegler and your Secretary. We missed Minnie Lawley, who has always attended our reunions, but who passed away this past year. The Secretary received an unexpected but happy surprise in August by a call from **Walter Kattelle**, who was making a brief tour of New England. He appeared to be in good health and it was good to see him again. Earlier in the summer I called on **Jim Patch** at his home in Carlisle, Mass. He and his wife had recently made a trip to Beirut, Lebanon, and other places in Europe and the Near East. Jim spent several years after graduation teaching in the College in Beirut and has always been greatly interested in that area. He evidently made the trip quite easily in spite of his handicap of arthritis. Other than that affliction he seems to be in good health. Your Secretary spent the entire summer at home, very comfortably and lazily. He also enjoys good health, the passing years weighing very lightly! How about you? Do drop me a line so that I can let your class-mates know how you are getting along and what you are doing.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton, Mass.

'01

There is very little news to give you at this time. **W. C. Appleton** was the only 1901 man present at Alumni Day. There have been two deaths in the class since the last report. **Henry Chambers** of Litch-

field, Conn., died on April 11, 1965, and **Clifford Shivers** of Woodbury, N.J., passed away on June 21, 1965. I have heard nothing further from Mrs. Peterson and presume that she is still in the mental hospital. I will let the class know as soon as I receive any news.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N. H. 03452

'02

Alumni Day brought out Arthur and Mrs. Collier and myself to represent '02. The numbers attending the luncheon grow steadily larger, class attendance smaller and smaller. This latter is, of course, to be expected. . . . **Lewis** and **Mrs. Moore** started for New England on the same date as Alumni Day and have spent a large part of the summer in the White Mountains of New Hampshire. . . . A letter received from **Warren C. Taylor**, Schenectady, in reply to a letter

congratulating him on his 85th birthday, states that he is able to work around his garden each day although he is more easily tired than he used to be. He and Mrs. Taylor have had 60 years of very happy married life. Their daughter has just been appointed Dean of Women at York Junior College. Taylor retired from Union College Engineering Department in 1950 after exactly 40 years of teaching, but even now he continues to teach a Bible class which keeps him busy with his books.

Arthur Collier writes, "In the early part of the summer I had a letter from **John Marvin** that he would be in the east to see his sister-in-law at Gloucester. I wrote him to call me when he reached Boston from Denver, his present home. Next day he was in Marblehead and my wife and I enjoyed being with him the rest of the day. After lunch we drove him down to Gloucester. Marvin seemed to be quite well, much as he was at our last Class

Reunion." Marvin and the Colliers called on me here in Salem on their way to Gloucester and we had a very pleasant chat. To continue with Collier's letter: "The last week of July we made a week's trip to Maine. As we enjoy the Maine coast so much, we have gone there for a week or more for several years. Coming home, we ran over to Friendship and looked up our good classmate, **Dan Patch**. He was sitting on the piazza of his home, where we had a pleasant half hour together. Friendship is a beautiful spot and Dan's house on the hillside overlooks the bay. He doubts very much that he will be able to attend affairs at M.I.T. for a while. After two days in the active port of Boothbay Harbor we started home, but not without calling upon '**Robbie**' **Robinson**) and his wife, Grace, in Brunswick. It is always pleasant to meet them. After an hour's friendly call we left, wishing him our best, as he had an eye operation recently."

Deceased

FRED M. MCGRAW, '86, March 19
CHARLES E. FULLER, '92, July 26
HENRY K. SEARS, '96, April 1
ALFRED M. BROOKS, '97, December 20, 1963
HOWARD B. COLLINS, '98, June 25
ROBERT L. DENISON, '98, July 31
RALPH R. RUMERY, '98, March 11*
ERNEST WOELFEL, '98, August 13
LEWIS B. ABBOTT, '99, June 28*
FRANCIS M. BINGHAM, '99, May 31*
HENRY W. CHAMBERS, '01, April 11*
CLIFFORD H. SHIVERS, '01, June 21*
EDWARD S. EVELETH, '02, January 5*
RUSSELL B. LOWE, '02, August 3*
HERBERT S. MAY, '02, September 1
GEORGE B. SEYMS, '03, March 6*
CLIFTON G. CRULL, '04*
WALDEMAR R. KREMER, '04, April 25
GEORGE M. BARTLETT, '05, May 16*
FRANK M. CARHART, '05, June 24*
IRVING H. COWDREY, '05, June 13*
JOSEPH DWIGHT, '05, June 29*
WILLIAM A. HALL, '05, December 2*
FRANCIS F. LONGLEY, '05, June 10*
EDWARD A. MEAD, '05, March 4, 1964*
RICHARD W. SENGER, '05, August 20*
PHILIP J. GARRIGAN, '06, May 8*
FREDERIC S. KRAG, '06, March 19, 1964*
PAUL LINCOLN, '06, April 23*
WILLIAM NEILSON, '06, May 27*
WILFRED N. OLIVER, '06, November 1964
RALPH O. REED, '06, July 22
JOHN F. GREENE, '07, July 7*
WARREN HASTINGS, '07, April 7*
ROWLAND B. ANTHONY, '08*
VICTOR J. BLACKWELL, '08, July 4*
ARCHER C. NICHOLS, '08, August 7*
MALCOLM B. HALL, '10, August 22
HOWARD B. RICHARDSON, '10, March 24, 1964
JOHN H. SCARFF, '10, October 31, 1964
EDWARD H. BLADE, '11, June 29
ISIDORE SPECTOR, '11, May 9
ALLISON H. WHORF, '11, November 8, 1964
WILLIAM A. CANADAY, '12, April 15
PERCY W. HODGES, '12, July 11, 1964
JUNIUS P. LEWIS, '12, March 4
HARRY L. BOWMAN, '13, May 24

MILLARD W. MERRILL, '13, May 8
ROBERT W. MOOREHOUSE, '14, August 8*
PHILIP E. MORRILL, '14, May 21
HARRY L. CRAIG, '15, January 25
E. THAYER MACBRIDE, '15, August 17
B. SAUNDERS BULLARD, '16, February
SETH C. CUTLER, '16, June 24*
SIDNEY R. DODD, '16, July 31*
HAROLD W. WHITING, '16, March 26
PAUL J. BERTELSEN, '17, December 10 1963*
LOWELL CADY, '17, April 10*
STEPHEN S. MASON, '17, July 16*
CHARLES E. ROSS, '17, August*
WILLIAM H. SANDLAS, '17, February 14*
EDISON F. SAWYER, '17, July 2*
JOSEPH K. PEARSON, '18, August 1
DONALD H. LOVEJOY, '19, July 16
NORMAN R. CATE, '20
ALEXANDER A. NIKITIN, '20, May 17
ELLIOTT R. PERKINS, '20, May 15
BOYD W. BARTLETT, '21, June 24*
PERLEY B. KIMBALL, '21, May*
CHARLES H. O'DONNELL, '21, May 13*
ROBERT M. ARNOLD, '22, July 26
GEORGE E. DEAN, '22, June 29*
FLETCHER M. DEVIN, '22, September 29, 1964*
MARK W. ELLSWORTH, '22, July*
WILLIAM F. HERLIHY, '22, November 30, 1963*
LEONARD M. PASSANO, Jr., '22, January 17*
ROBERT P. RUSSELL, '22, May 28
THEODORE A. SCHWAMB, '22, April 6*
FRANCIS S. SINCLAIRE, '22*
HENRY W. ARMINGTON, '23, August 14*
HERBERT A. BARNBY, '23, May 2*
JAMES O. COLEMAN, '23, 1964*
SAMUEL F. GORDON, '23, September 22, 1964*
BERNARD L. ZANGWILL, '23, May 29
MRS. JEAN M. ASHTON, '24, February 26*
RICHARD B. L. FLEMING, '24, December 4*
WILLARD M. MARKS, '24, June 21, 1964*
RIENZI B. PARKER, '24, June 25*
JOHN L. TATMAN, '24, November 30, 1964*
JOSEPH F. TAYLOR, '24, July 19*

KENNETH F. WILLIAMS, '24, July 5*
JOHN G. BEAGAN, '25, April 6*
JOHN P. CLOUGH, '25*
LAWRENCE A. CUSOLITO, '25, August 25
GEORGE W. ELKINS, '25, May 8
DAVID GOLDMAN, '25, August 21*
FRANCIS X. MAHER, '25, January 6*
WINSTON R. BURROWS, '26, November 5, 1964
WILLIAM P. HINCKLEY, '26, April 14
EDSON E. ALDRICH, '27, May 21*
THOMAS C. GRIER, '27, August 16
SAMUEL B. SMITH, 2d, '28, July 12
GEORGE G. CUDHEA, '29, July 16*
VINCENT J. ESPOSITO, '29, June 10*
EARL W. GLEN, '29, March 11*
ROBERT HENDERSON, '30, May 20
JOSEPH GOODWIN, '30, April 27
MYRON G. RIDLON, '30, August 31
FERDINAND L. ROUSSEVE, '30, July 18
CHARLOTTE WINNEMORE, '30, July 29
MAX DAYTZ, '32, June 25*
MATTHEW T. MAYES, 2d, '32, May 25*
FREDERICK J. POWERS, '32, September
BURTON T. ELLIS, '33, December 20*
ALVIN C. GRAVES, '33, August 1*
INGVALD E. MADSEN, '33, June 25*
GEORGE S. MENNINGER, '33, July 9, 1964*
ROGER S. BRIGHAM, '34, December 3*
IRVING R. GELTMAN, '34, June 11*
RAYMOND S. LEVINE, '34, April 10
CHARLES MATTLAGE, '34, July 12*
BURTIS S. BROWN, '35, May 26
CHARLES E. CREDE, '36, December 29
DANIEL E. FARMER, '36, February 7*
DEAN A. PIPER, '36, August 12
RALPH H. LEBOW, '38, July 24
SCOTT W. WALKER, '40, May 30*
GINO G. FUBINI, '41, May*
BEN A. ELMDAHL, '42, August 6*
A. ROBERT ALMEIDA, '44, August 6*
CHARLES H. BURNS, '44, June 20*
WALTER H. HARTE, '45, May 21*
WILLIAM R. LINDSAY, '46, August 16
THEODORE W. MILLER, '46, April 18*
ARIOCH W. ERICKSON, 3d, '57, March
JERRY CANTY, '64, July 15*
ABBA A. WEINSTEIN, '64*

*Further information in Class News.

Death has taken from us one of our most loyal classmates, **Russell B. Lowe**, who died August 3, 1965. The Boston Herald of August 5th carried the following obituary: "Funeral services will be held for R. B. Lowe, retired industrialist, banker and insurance executive at the Calvinistic Congregational Church Friday at 11 A.M. Lowe died Tuesday night after a long illness. He was 85. A lifelong resident of Fitchburg and a 1902 graduate of M.I.T. he was president of the former Park Hill Manufacturing Company here. He succeeded his father in the textile plant founded by his grandfather in 1839. He was also a former director of Equitable Life Insurance Co., a former director of the Merchants National Bank of Boston and was a director and vice-president of Fitchburg Savings Bank. He had served as Chairman of the Fitchburg Park Commission and as trustee of Burbank Hospital. He leaves two daughters, Mrs. Charles M. Dodson of Bethlehem, Pa., and Mrs. Burton H. Etherton, Jr., of Haverford, Pa.; a son, Russell B. Jr., of West Hartford, Conn.; and two sisters, Mrs. Robert Fish of Scranton, Pa., and Mrs. Malvern Clapton of Princeton, N.J."

The Alumni Office reports the death of **Edward S. Eveleth**, Course V, on January 5, 1965. Unfortunately our class records contain little information regarding his activities.—**Burton G. Philbrick**, Secretary, 19 Ocean Ave., Salem, Mass.

'03

Well classmates, the summer interval for our customary news is over and innumerable interesting events must have occurred among you, combined with abundant relaxation, yet your alert Secretary is still in suspense for news. Occasionally I will receive the heartening response that a classmate will attempt his busy life's sketch, and although it may be modest and seemingly unheroic, yet the news will awaken keen interest in many of his course associates.

Our Reunion at class table on Alumni Day last June was marked only by the presence of ever-genial **Bob King** and his gracious wife, as was to be displayed by a fine colored photo in our November Review, but they were unable to use it. **Gus Eustis**, III, missed due to his unavoidable yearly Board Meeting at Virginia Refineries. . . . **Ike Atwood**, II, with Mrs. Atwood, his constant companion on travels, was on return from the Orient. . . . **Stan Foster**, X, still active at his Lowell home-stead, is undoubtedly non-plussed to know how the shoe manufacturers ever succeed today, in this new era of sandals both for men and women. . . . **Leroy Thwing**, II, is now much improved from a recent operation and enjoying his latest book, "Old Lamps of Central Europe," now in circulation. . . . I enjoyed a pleasant visit recently with **Charlie Griffin**, I, and Mrs. Griffin at their cozy home. They have missed their customary vacation in Maine due to her attack of sinus. Charlie thinks his retirement from a busy railroad engineering career was fortunate, consid-

ering the chaotic upheaval in present railroad transportation.

Gus Eustis, III, **Jim Welsh**, VI, and your zealous Secretary, V, enjoyed a two-day celebration for the 60th anniversary of their graduate studies last June at Harvard Commencement.

Returning to our Alma Mater news, the striking Student Center, opposite our M.I.T. main entrance on Mass. Ave., is now almost completed for service. This unique and modern structure embraces all the comforts for student and alumni relaxation and activities. A cherished abode by past and present students.

The modest labors of all M.I.T. Alumni Officers is remembered each year and we were guests with reservations at Baker House—married members with their wives stayed at McCormick Hall—for the sixth Alumni Officers' Conference, September 10 and 11. We had a sumptuous breakfast at Baker House, 12:30 luncheon at Burton, 5:15 reception at Student Center Lobby and 6:30 dinner at Harold E. Lobdell Room, which is at the new Student Center, with opening ceremonies. After many interesting lectures in Kresge Auditorium during the interval, we enjoyed talks by Dr. Killian and Dr. Stratton on present and future plans for the Institute. I was the guest of **Ike Atwood**, our Counsellor.

Jim Welsh notes that his new address as of June 1 is Central Beach, R.F.D., Bradford, R.I. . . . **Scotty Morse**, I, extends his greetings to us from Indianapolis and hopes to favor us with a few facts of his long, busy career since graduation. . . . **Mrs. Leroy Gould** is still active on all our class activities, as evidenced by a post card from Seattle, Wash., sent while she was visiting her son. . . . Our classmate **George B. Seyms**, II, has passed away at Rosement, Pa., on March 6, 1965; we await further information. . . . Our birthday greetings go to **Arthur S. Gibbs**, VI, Brockton, Mass., on May 13 for his 85th; **Ernest Cronenbold**, XIII, on June 11 for his 90th at Wood Ridge, N.J.; **J. Tyrrell Cheney**, II, on June 26 at Wilton, Conn., for his 85th; and **Louis W. Graves**, II, on July 24 for his 85th at Buffalo, N.Y.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston, Mass.

'04

Your Secretary has been confined to the hospital for the last three months but recently was transferred to the Wellesley Manor Nursing home in Wellesley, Mass. I am sure Carle would appreciate cards from you from time to time. . . . Alumni Day was a very cold windy one this year and our representation was not as good as usual. Your Treasurer signed up at headquarters and it was reported that our class agent was also present; however, they did not meet. . . . A card from **Amasa Holcombe** said that he expected to be in Atlantic City at that time attending a Rotary meeting. He also stated that **Fred Pierce's** wife passed away last year and that **Al Coupe** was now in a nursing home

in Florida. Also received was word that **Clifton G. Crull** (Course IV) passed away recently. Details are lacking on most of the above new items.

We are indebted to **Gus Bouscaren** for the following. He received a note from the **Karl Peilers** who spend most of their time on their Yacht, Leda. They base at Essex, Conn., near the mouth of Connecticut River and make cruises to various places such as Cape Cod, Nantucket and Montauk. A nice way to spend the summer. He also reports that they had a most pleasant day with **Harry** and **Glendora Rollins** at their fairy-like hillside perch on the slope of La Jolla's mountain. He says he has never seen so many and such beautiful flowers and flowering shrubs as surround their house—**Eugene H. Russell**, Treasurer, 82 Stevens Road, Needham, Mass.; **Carle R. Hayward**, Secretary, 120 Beacon Street, Boston.

'05

Of course, the big news has to do with our 60th Reunion, which for the first time was held on campus. It is easy to use superlatives and difficult to find standards to measure the success of such an occasion, but I am sure it was "the most" from any angle. Unfortunately, perhaps, we celebrated in two sections, the group who slept at the Charter House Manor, and those who went to their homes in Boston or the suburbs at the close of the evening's festivities. However, both groups lunched and dined together, so that the actual "reunion" was complete. We were privileged to have our first Class dinner at McCormick Hall, the new dormitory for women. We all agreed that the occupants were fortunate in having the most wonderful "house father and mother," Mr. and Mrs. Lynwood Bryant. The Bryants entertained us royally and liberally at a cocktail party in their apartment on the second floor, prior to the class dinner. Later they took us to the roof where we could overlook all of Boston, Cambridge, and the Charles River under a full moon. Incidentally, the Bryants and the **Leonard Cronkhites** are friends of long time and the Bryants have their summer home not far from the **Goldthwaits** in Sandwich, N. H.

Who is "us" in the above paragraph? **Carlton** and **Ann Atwood**, VI; **Wallace** and **Ruth MacBriar**, II, from Seattle, Wash.; **John** and **Rosanna Flynn**, II, from Buenos Aires; **Court** and **Elizabeth Babcock**, VI; **Bill** and **Peg Ball**, III, from Cotuit, Cape Cod; **Dean** and **Helen Klahr**, II, from Erie, Pa.; **Myron** and **Rose Helpert**, V; **Charlie** and **Isabel Smart**, II, from Troy, N.Y.; **Willard Simpson**, I, and his sister, **Mrs. Edith S. Haller** from San Antonio, Texas; **Charlie Mayer**, IV, from California and his daughter and son-in-law, **Ruth** and **George Gow** from New Jersey; **Leonard** and **Bernice Cronkhite**, IV; and **Ruth** and myself. Also **Bob McLean**, II; **Harry Charlesworth**, VI; **Henry Buff**, III; **Isadore Nye**, V; **Hub Kenway**, II; **Doc Lewis**, X; and **Bob Young**, V, accompanied by his son. The

dinner at McCormick Hall was superb and a tribute to the M.I.T. Dining Services. After the cocktail hour, Jack Flynn's niece, Mrs. Esther Gregory Flynn joined the party, as did the Bryant's charming daughter, Susan.

After dinner there were several impromptu speeches. Jack and Susanna Flynn told us something about their life in Argentina and their new venture, manufacturing bone china. Jack was hale, hearty and robust. Bill Ball spoke of his experience in the Power Squadron, in which he apparently has risen from cabin boy to commander. His enthusiasm for the project was sufficient to have won converts, if his audience had been 25 to 50 years younger. However, Bill is still very active and carries his years very lightly. Carlton and Ann Atwood told of their hobby or avocation of handwriting analysis. They do considerable travelling and instructing all over the East and Mid-west. Several others spoke, mostly kind words, which made your secretary blush. Incidentally, at this reunion, I celebrated my thirtieth anniversary as Class Secretary. I use the word celebrate advisedly because I have enjoyed the work of helping keep the class spirit high.

Our second dinner on Sunday night at the Faculty Club was another bright spot. Those attending about as above, with Herman Gammons, II, and son, also an M.I.T. graduate.

On Alumni Day we were joined by Bert Files, I, and his son Dick and daughter-in-law, Sheri; Gilbert and Elizabeth Tower, XIII; Arthur Balkam, II; Gilman Joslin, XIII. Our numbers dwindled at the Alumni Dinner on Monday night, but the Balls, Simpsons, Klahrs, Smarts, Flynn's, MacBriars, Atwoods, Izzy Nye and Ruth and I enjoyed a fine dinner; later we sat as a group at the Pops Concert in Kresge Auditorium. Our grand total was 38, of these 22 were men, 13 wives and 3 guests. I am sure that on parting everyone started looking forward to 1970.

There were many interesting items included in the letters of those classmates who could not come. One of the most interesting was from Jim Barnes, VI. In spite of many prods we had not heard from him for several years. I supposed he was in retirement in Miami. Far from it. His letter is long enough to make up for lost time, but too long to quote here. However, just a bit: "My own work is in the specification and estimating department of Maurice H. Connell and Associates, Inc., whose work is widespread in both territory and interest. We have a full scale architectural department in addition to engineering and have done such interesting things as full-scale university campuses and Nike-Hercules interceptor missile placements, which should give you an idea of the variety of interests that I contact daily.

"Complex 34 Service Structure was the first project in point of time and the problem posed to us in 1960 was to design a structure large enough to straddle the Saturn rocket and carry at a height of 245 feet (clear hook lift), self-propelled, to and from position on the firing pad, with a crane capacity of 65 tons, the

crane (bridge) having an overhang of 20 feet on one side of the structure. The rest of the work at the complex was similar to what had already been done, but the designing of a self-propelled building a city block in size, an overall height of more than 300 feet and a weight of 2,800 tons was a really novel problem. Another tough aspect of the problem was that the structure must be able to withstand hurricane winds of 125 mph.

"In place the structure 'embraces' the 'bird' and allowing for varying diameters of the rockets to be handled, it was required that there be retractable work platforms, adjustable in height, so that all points of all units would be within reach for servicing.

"You'll notice that in order to straddle the bird it was necessary that there be no cross-member obstruction below the crane level. The problem of controlling two independent driving assemblies, one on each leg, so as to avoid skew in the structure proved to be one of the most baffling, as was also the driving of so huge a weight at controllable speed. It reminded me many times of my street car days, but the driving mechanism developed was very far from the old 'trolley-car' type.

"Shortly after the successful design of this structure and during the time of its construction we were asked to design a still larger mobile unit for use on another complex, this some 60 feet higher than the Complex 34 job and to include (for the weather protection during servicing) a set of 'silo gates' to enclose the bird entirely during the servicing period. The necessary weight of these silos—whose 'enormousness' may be deduced from the fact that the hinge pin is high strength steel of 8-inch diameter—so unbalanced the loading that it was possible in this case to avoid the problem of cross distortion by placing the drive on one side only. The method of handling the problem will be clear on reference to the enclosed pamphlet."

The pamphlet referred to was a series of reprints from aviation magazines, covering the building of several structures from which several of the missiles at Cape Kennedy were launched. So Jim, instead of being in retirement, was active in construction for the government. Incidentally, Jim enclosed a picture of himself and the Class Boy, now a strapping big fellow, nearly 59 years old, who lives in Detroit and has been for several years with an advertising concern. Remember the flurry we had in December 1905 when we learned that we had a baby boy?

Other items of above nature will have to be deferred until the December issue. Remember to remind me that I must not forget to wish you a Merry Christmas in that issue. Perhaps I should substitute "healthy" for "merry."

Since my last writing of notes in April our class has had several losses by death. Edward A. Mead, VI, of Gettysburgh, Pa., died on March 4, 1964. I can find no details as to his class associations in correspondence or in old Techniques regarding him. Perhaps someone remembers. . . . Captain William A. Hall,

XIII, died at Clearwater, Fla., on Dec. 12, 1964. Similar lack of records here. . . . Irving H. Cowdrey, II, died in Needham, Mass., on June 13, 1965. Course II men will remember "Irv" well. After graduation he continued at M.I.T. as instructor and retired as Assistant Professor in 1948. He had been prominent in civic work (engineering) in Needham before and after retirement. . . . Frank M. Carhart died in Wellesley Hills, Mass., on June 24, 1965. I quote from the Boston Herald: "A native of Ogden, Utah, he was a civil engineer graduate of M.I.T., class of 1905. After working as a survey man on railroad location work in Idaho, he became assistant state engineer and chief engineer of the Carey Act Department for Idaho. He also was valuation engineer for the Idaho Power Company, for which he did hydraulic studies.

"In 1923 Carhart joined the Jackson & Moreland consulting-engineering firm of Boston as department manager in charge of public utility rate studies, valuations, and economic and financial investigations. He became a member of the firm in 1927, general partner in 1930, senior partner in 1951, president of the corporation in 1955 and chairman of the board in 1959.

"In 1964, when Jackson & Moreland merged with United Engineers & Contractors Inc., he was elected a director of the combined organization. Carhart was also president of Wood-Regan Instrument Company of Nutley, N. J.

"He was a licensed professional engineer in six states, Nova Scotia, and with the National Bureau of Engineering Registration. He was a Fellow of the Institute of Consulting Engineers, the American Society of Civil Engineers.

"Also the American Society of Mechanical Engineers, the Boston Society of Civil Engineers, the American Association for the Advancement of Science, the Society of American Military Engineers (Boston Post), Engineering Societies of New England, the American Academy of Political and Social Science, and Massachusetts Society of Professional Engineers, Inc."

George M. Bartlett died at Merchantville, N. J. on May 16, 1965. I had had a letter from "Piggy" (in a former letter he had written, "call me Piggy. I've been Piggy all my life.") He had hoped he might attend the reunion. His son wrote that he had died of a heart attack while playing golf at the Merchantsville Country Club.

Francis F. Longley, XI, died in Miami, Fla., on June 10, 1965. The Hyannis (Cape Cod) Times carried this obituary:

"Colonel Francis F. Longley, a summer resident of West Dennis for 10 years, died Thursday in Miami, Fla. He had lived on Quaker Lane in West Dennis.

"Colonel Longley was a West Point graduate, Class of 1902. After graduation, he resigned his commission in the Army and entered Massachusetts Institute of Technology where he studied sanitary engineering.

"After graduation from M.I.T. he worked in Washington in the District

Water Department and aided in the work of water purification and in the reduction of typhoid fever there and in various other cities. He became a consultant in water problems and worked in many parts of this country and in Canada.

"During World War I, Colonel Longley was recommissioned by the Army as a Lieutenant-Colonel of the 26th Engineers, under General Pershing, and handled the water supply problems of the troops in Europe, working with the French and British authorities. After the Armistice, Colonel Longley was assigned to supervising the plan by which 2,000 American officers attended 40 British universities while awaiting return to the U. S.

"After the war, Colonel Longley resumed his engineering practice and was the head of a corps of sanitary engineers working on health and sanitation problems all over the world under the American Red Cross.

"Colonel Longley developed the firm of Lock Joint Pipe Company of New Jersey."

Just at the moment of closing these notes, I learn that **Richard W. (Dick) Senger**, aged 86, died at Salt Lake City, Utah, on Aug. 20, 1965. I have no other details, but will have before the next writing.

Joseph Dwight, IV, died in Centerville (Cape Cod), Mass., on June 29, 1965. I do not know how long his association with M.I.T. was, but his sister writes that he went to M.I.T. for a year and a half between 1901 and 1905, and that he then went to Harvard, majoring in astronomy, and as an avocation took up chess, in which he apparently was in international competition.

Mrs. Alice N. Files, wife of T. Herbert died at her home in Norwell, Mass., on June 4, 1965. Those who reunited with us so many times on Cape Cod will remember her fondly, and our sympathy goes out to Bert and family.

I probably have left out many of the highlights of our reunion, partly because of the necessity of avoiding verbosity, partly due to the fact that I lost somewhere some of the copious notes I made at the time, but I must tell of the joy **Willard E. Simpson** and his sister Edith gave us all. Willard, in spite of the fact that he had had a somewhat restricting sickness last fall, was his old jovial self and joined wholeheartedly in everything. After the reunion we drove Willard and Edith back to our home in the foothills of the White Mountains and for several days we toured northern New Hampshire and Vermont. Willard, in spite of the fact that he spent four years at "Boston Tech," had seen little of our glorious New England states. I am sure they both realized that we have many, many things that Texas has not. I wish I could dilate, but briefly, when Ruth and I took them to the airport at Laconia, N. H., instead of the big eight seater, which was scheduled, in came a little puddle jumper, which they had to climb up into on their hands and knees. Ruth and I actually shivered at day until at 9 P.M., on telephoning, we found Willard at home in San An-

tonio, actually thrilled about his trip to Boston in an "itty bitty" plane—**Fred W. Goldthwait**, Secretary, Center Sandwich, N. H.; **Gilbert S. Tower**, Assistant Secretary, 35 No. Main St., Cohasset, Mass.

'06

A year ago these notes were started with a report on the preceding Alumni Day. At that luncheon "we had a larger than normal group, four couples, six stags, two grandsons, and a guest, a total of seventeen." This year we didn't even have all the "regulars" but I have here the signatures of **Betty and Stew Coey**, VI; **Bertha and Sherm Chase**, XI; **Ruth and Chester Hoefer**, I; **Walter Davol**, VI; **Bill Abbott**, VI; **Ned Rowe**, VIII; and **Clark Dalrymple**, the Coey's grandson. **Charlie Kasson**, VI, who has been so regular through the years, was not well and has been in Haverhill Manor for some months. **Mike Gibbons** attended last year with a grandson and a guest. A while ago Mike telephoned from Dayton to Don Severance, who told me he had had a "very pleasant conversation—apropos the forthcoming Alumni Seminar," during which he had asked to be remembered to yours truly. I've been wondering if Mike and Bertha came up for the Seminar. **Henry Mears** was on deck last year, also **Jim Wick** with his '06 cane. Jim has sold his Rockport property, but their daughter Emily, '51, still lives in Rockport—she sails—and in July Betty Coey sent me a clipping from a Youngstown paper telling about her appointment as Associate Dean of Student Affairs at M.I.T., although her primary responsibility will be with the women students who may total 350 to 400 in the near future. I sent a copy of that article to the secretary of '51, so look in his class notes for more details about Dr. Emily Wick.

Since last spring '06 letters and cards have been few and far between, in fact, they add up to zero. Personal contacts have been very few also. Marion and I have tried to get together with Bertha and Sherm and while we were in Manomet we called to see Helen and **Bill Farley**, who unfortunately were not at home. I did hear indirectly about **Howard Barnes** while I was attending the Sixth Alumni Officers Conference on campus on September 10 and 11. The attendance at these very worthwhile conferences keeps increasing—about 300 this year—and we had a chance to talk with some people, especially during meals. The man from Plymouth, **E. W. Brewster**, '13, told me that Howard navigates now with a couple of canes. From Tacoma, Wash., **A. R. Anderson**, '35, had been in the USSR on some technical mission and told me a lot about conditions there. During the concluding lunch at the Faculty Club I talked with **A.P.L. Hotte**, '42, who lives a few miles outside Indianapolis, Ind. The talk after lunch by beloved **Van Bush**, '16, was a fitting "swan song"—practically a sermon!

Although I haven't any more "live" news, I have five deaths to report. **Fred-eric Schuyler Krag**, II, according to a letter recently received by the Alumni Office, died on March 19, 1964, probably in New York City. In the '06 Technique his home address was given as San Francisco and during the three years he was with us he lived in Brookline. He did not return for senior year and probably soon joined the B. F. Sturtevant Company, by 1913 being their mechanical engineer at 30 Oliver St., Boston. A few years later he became manager of their New York office and by 1920 was manager of their New York territory; later he became President of his own company, Krag Engineering Corporation in New York City. Just when he made the change the available sources do not show, but along in the 1950's and possibly until he died, he was a vice-president of Coe Manufacturing Co. in New York City. Devious are the ways by which reports of deaths are received; one source is the result of Alumni Fund mailings. Back in May a card was returned to the Fund with a note that **Wilfred Nealley Oliver**, II, had died in November, 1964. He was with our class only the first two years, his address being 26 St. Stevens Street, Boston, perhaps his home. He was with the Boston Bridge Works in East Cambridge for a few years, then in Lowell, and for 20 years or so was with the engineering firm of John A. Stevens on Shattuck Street in Lowell. For a short period he was with Chas. T. Main, Inc. in Boston and by late '54 had retired, his address being North Billerica, Mass.

Deaths are reported directly by the widow, a daughter, or a son. Such a daughter, **Frances A. (Lincoln) Cathern**, wrote to me in July: "Dear Mr. Rowe: would you be so kind as to take care of the report of my dad's death in the Technology Review?" She had done some clever detective work, as she continued, "I am not sure of the year in which he graduated from M.I.T. I found among his things a textbook with '06 written in it and assumed that that was the year." She was right, as **Paul Lincoln**, III, was with us the first three years. He died April 23, 1965, in Spokane, Wash. Enclosed—very thoughtfully—by Frances was a clipping from the Nelson Daily News, Nelson, B.C., Canada, where Paul had spent most of his life. He was born December 3, 1883, in Farmington, Maine, and while with '06 lived at 27 Russell Street, Malden. He soon found a job in an assay office in Tonopah, Nev., then prospected for a year through southern Nevada and the Death Valley region of California. After a year as surveyor on the Los Angeles Aqueduct at Elizabeth Lake Tunnel, he started his long career in mining. For a year or so he was at Ocampo, Mexico, as engineer for the Sierra Mining Company and was superintendent of lease on Parcionera Mine, then engineer for the Chi & El Potori Mining Company, both at Santa Eulalia. By or before 1915 Paul began his long residence in Nelson. To quote from the Nelson News: "Mr. Lincoln, a mining engineer, was identified with the Noble Five Mine at Sandon for more than 20

years, first as engineer for Sir James Dunsmuir, and after his death, as president and general manager. The Noble Five comprised the original Noble Five, the Last Chance, and the Surprise properties at Cody. He also operated the Athabasca above Nelson." There was an interval around 1925 when Paul was back in the States as president and manager of the Inter-Mountain Gunite & Construction Company of Salt Lake City, but he was soon back in Nelson as president and managing director of the Noble Five Mines and the Nelson Slocan Consolidated Mine, Ltd., until he retired to live with his married daughter and three grandchildren in Newman Lake, Washington. In 1908 he married Ethel A. Barr, who died in 1964.

Another death, reported to the Alumni Office by his son, was that of **Philip Joseph Garrigan, VI**, on May 8, 1965, probably in Lowell, Mass., where he had continued to live after his two years with our class. He was employed for some years by the Holtzer-Cabot Electric Company in Boston and by or before 1920 joined the Heinze Electric Company in Lowell in experimental and research work. For a few years he was a draftsman with John A. Stevens, Inc., and then for some 20 years was connected with the Courier-Citizen, the Lowell newspaper. His address for a number of years has been 783 Lawrence Street; he probably was retired. . . . Another son reported to the Alumni Office the death of his father, **William Neilson, III**, on May 27, 1965. He was born February 15, 1885, in Boston, entered and graduated with us, his home address being 8 Cumberland Street. A member of the Mining Engineering Society, his thesis was a Study of Faults in Middlesex Fells. For the 1916 history he reported that from '06 to '10 he was mining in Nevada and from '10 to '15 a consulting engineer in Portland, Ore., and later in Mosier. By or before 1920 he was with Bond and Goodwin, Investment Bankers, and by 1930 was a bond salesman with the Anglo-California Trust Company, in San Francisco; he continued there for about ten years and then became a field engineer with the E. K. Hussey Engineering Corporation in Oakland. He had retired before '55 to 129 Meadow Lane in Orinda, Calif. In 1905 he married Jeannette B. Sherwood and for the 1916 history reported that they had one child.

Perhaps you have noticed that of the five careers detailed above, only one was supplemented by an obituary clipping, sent to me by the daughter, containing some details that I would otherwise have lacked. The other four reports, from "Fund Card," letter, and sons, went to the Alumni Office, and the files. . . . **Fay Libbey, III**, has moved from his home on N.W. Everett Street into the Biltmore Apartments (No. 208) at 2014 N.W. Glisan St., Portland, Ore. 97209. **Arthur Thomas, II**, has moved from Asheville, S.C., to 109 Norwood Road, Warrenton, Ga. 30828. Hope you all had an enjoyable summer—Marion and I did. **Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills, Mass. 02181

'07

A nice letter from **William B. Farrington, '53**, received this past June called to my attention a serious omission on my part in not recording in the 1907 November notes of 1964 the death of his father and our classmate, **Harold P. Farrington, I**, on June 7, 1964. I had inadvertently filed the letter from Mrs. Farrington in my folder of "Completed Notes" instead of keeping it in the "Active" file. I wrote a letter of apology to the Farrington family. Harold died in Albany following a long illness. At M.I.T., he received both a B.S. and M.S. degree. He spent several years in hydroelectric engineering work and later was engaged in the importing business. Following World War I, he served as Coordinator of Audits and Appraisals in the office of the U.S. Alien Property Custodian. For more than 20 years he was actively engaged in the management of the Standard Stoker Company, Inc., and its successor companies. Since 1938, Harold served in the capacity of President of Commonwealth Gas Corporation of Charleston, W.Va., and New York. Since 1941 he was also Chairman of the Board of Southwest Gas Producing Company, Inc., of New York and Monroe, La. Harold was a prominent amateur tennis player for many years and held numerous trophies. Surviving are his wife, Mrs. Isabelle Thompson Farrington, a son William, and three grandchildren.

Early in August your secretary mailed to each living Class member a new roster of the Class with their addresses, a report of the Class Treasurer, and a letter of general information. I have had several replies to this mailing and received a number of checks to keep the Class kitty purring. Also, a number of corrected addresses were sent in. So please make the following changes of address on this new list: **Edwin W. James**, 3601 Connecticut Ave., Washington, D.C.; **Phil Greenwood**, 8505 Springvale Road, Apt. 139, Silver Spring, Md. 20910; **Kirk W. Dyer**, P.O. Box 32, Cromwell, Conn. 06416; **Howard Marvin**, 19 Glover Avenue, Newtown, Conn. 06470; **Maurice H. Pease**, Harthaven, Oak Bluffs, Mass., 02557; **Frederic Menner**, El Mirasol Hotel, Santa Barbara, Calif. 93102; **Ernest A. Miner**, 262 West Marion Avenue, Punta Gorda, Fla. 33950.

Two years ago I called at the home of Prof. **Phelps Swett** in Middlebury, Vt., and found no one at home. Later, I learned he was at his summer home on Lake Dunmore. When I was in this region last August, I looked up Lake Dunmore, found the Swett cottage, and spent a very pleasant two hours with Phelps, his wife, son Phil, and grandson. While Phelps has retired from teaching at Middlebury College, he is active as President of the local national bank so that we had many things in common to discuss about local and state finances. Phelps is having difficulty with his eyesight, so that his son Phil helps out in driving. At our last reunion, Phil drove his father to and from Oyster Harbors.

He asked to be remembered to all the '07 gang.

Alumni Day, on June 14, was the outstanding day of the year for the Alumni Association. I had hoped many '07 men would attend, and we could consider it our interim reunion which had been planned to be held at Oyster Harbors the preceding two days. I sent out post cards to those living in the Boston district. Your President, **Don Robbins**, and Secretary, **Phil Walker**, with their wives, formed the nucleus of the '07 Class. **Louis A. Freedman**, a regular attendant, was there also. We were happy to welcome to the noon luncheon our Assistant Secretary, **Gardner S. Gould** and also **E. Stanley Wires**. The detailed account of the day, given in the July Review, is well worth reading.

The "Grim Reaper" is always active, especially if we have passed the four-score milestone. Through the interest of Russ Westerhoff '27, I learned that **John F. Greene, I**, died following a heart attack on July 7, 1965. John received his education at the Boston Latin School, attended Boston College, and received his A.B. in 1905. He then came to M.I.T. and was with our Class for two years. Following graduation, he spent 16 years in construction work in Canada. He returned to the United States as construction engineer on a large bridge project for the city of St. Paul, Minn. In 1923 he joined the engineering firm of Ford, Bacon & Davis, Inc., of New York City. From 1923-1950 he was in charge of construction of bridges, industrial plants, power plants, natural gas pipelines, ordinance plants, shipyards, levees, valuations and appraisals of industrial plants, utilities plants and natural gas transmission systems—surveys for location of natural pipelines. He was married. His one son, a naval aviator, was killed during World War II. A daughter survives him.

The Alumni Register notified me in June of the death of **Warren Hastings, III**, on April 7, 1965. I wrote a belated note of sympathy to Mrs. Hastings and received a very gracious reply and also an obituary notice giving an outline of Warren's business activities. On leaving the Institute in 1907, he joined the New Jersey Zinc Company and eventually he became superintendent of both the Franklin and Ogdensburg mines. He retired in 1955, having served 48 years with the company. From 1912-1930 he served as mayor of Ogdensburg and later as councilman. He was a member of the Board of Education and also a former fire chief in Ogdensburg. Surviving is his wife, Mrs. Alice Hastings. There was no family. Please note these two deaths on your Class Roster by crossing out the name and inserting the date of death.

Alumni Officers' Conference, Friday & Saturday, Sept. 10-11—This was the 6th year that the Alumni Association has had as its guests class and club officers and members of the Alumni Fund organization. They are a most enlightening two days, as we learn what is being done at the Institute, how it is being done, who is doing it, and how the Alumni Fund helps to make all this pos-

sible. The Student Center is nearly completed, and the Harold Edward Lobdell Room was the location for the reception and dinner held on Friday evening. This building is something we, of '07, never dreamed as being a possibility during our undergraduate years. The bus tour of the whole campus, following dinner on Saturday noon, was one of the highlights of the conference and gave to all who took it an insight into the growth that will take place in the next few years. Dr. Stratton, Dr. Killian, and Vannevar Bush were among the key speakers. Attendance this year was approximately 400.

Notes or letters have been received from the following '07 members: "**ME**" **MacGregor** took his twin granddaughters on a hike through the Green Mountains in June. They climbed two 4,000-foot peaks, Mt. Abraham & Mt. Ellen, on the "Long Trail," camping out at night. . . . **Arthur O. Christensen**, our water-skiing member, wrote me an interesting letter comparing his Harvard Class of '06 with his '07 Class at M.I.T. He feels that, although M.I.T. cost more to attend than Harvard, it was worth it. **Arthur** has two daughters who are both married so that he now has nine grandchildren and expects soon to be a great grandfather. . . . **Phil Greenwood** and his wife have sold their home that they occupied for 44 years and have moved into a church-operated apartment project for senior citizens. (Note change of address as given elsewhere.) They are living within a mile of their daughter and her family who were a great help to them in getting settled in their new location. . . . **Kirk W. Dyer** for many years was very active in the florist organization of A. N. Pierson, Inc., of Cromwell, Conn. He retired five years ago but still has a financial interest in this concern. Please note his change of address. . . . **George Griffin** tries to live the simple life at Woods Hole. He has to keep to a very strict diet and does not eat out at all, so did not consider it wise to come to Alumni Day to which I had invited him. . . . **Kelly Richards** is one of the few '07 men who is still gainfully employed and, as he writes, "probably working harder than I should but I enjoy the construction business, and my doctor has approved of my doing so." He has a daughter in Lincoln, Nebr., with two children, a son in Amherst, N.Y. with two children, and a son in Needham with three children. Kelly and his wife also live in Needham.

Jim Barker wrote me a note explaining that he would not be able to attend Alumni Day, although he would be in Cambridge for the Corporation meeting and graduation exercises on June 11. He had to present a candidate for an honorary degree at Northwestern University on the 14th. . . . **Jim Gaylord** celebrated his 80th birthday on May 15. The next day he became ill and was taken to the hospital and was there for several weeks. This information came from Jim Junior. . . . **Watters Pagon** is actually 81 instead of 80 and wrote me an interesting letter about the doctor's failing to record his birth, after I had sent him

my birthday letter. Mrs. Pagon had a surprise dinner party of 15 friends at the Johns Hopkins Club on June 3, when he celebrated his 81st milestone. Watters received an A.B. from Johns Hopkins and, after getting his B.S. at M.I.T., went to Harvard for a year and received his master's degree. For many years he was a consulting engineer and still does work for special clients. He worked at one time with the Baltimore Bridge Company and served as the engineer member of the Baltimore City Planning Committee. He also taught a class on structures at Johns Hopkins University. Watters had three children, two sons and one daughter. Only one son is now living and is actively engaged in the financial district of New York City. He has a number of grandchildren, most of them still in school.

Ellis Doucette expressed his regrets that he was unable to attend Alumni Day; but owing to advanced years, neither he nor his wife ever goes very far from his little home in Nabnasset. One of Ellis' hobbies is the making of violins. He has made five since 1914, three of which are being used by different players. He has kept two for himself. He says, and I quote, "The violin is one of the few instruments that has baffled scientists ever since it was first made. You can follow the rules to the minutest detail; but until the instrument is strung up and played, one does not know how it is going to work out." If we had known of Ellis' hobby, we could have had him speak about it at one of our Class dinners. He is only 79 years old instead of the 80 on the Alumni records.

I noticed in a Boston Sunday Herald early in June an account and photograph headed "\$750,000 MacGregor Gift puts Mt. Holyoke over the top of its \$2.5 Million Ford Grant." Reading the article, it was soon made plain that the giver was none other than our own **Frank MacGregor** of '07. Frank's sister Ruth was a graduate of this college but died during World War I. If she had lived, she would have celebrated her 55th reunion this year. The new dormitory is to be ready for occupancy in 1967 and will be named "Ruth MacGregor Hall." Frank's wife was a classmate of his sister in the Mt. Holyoke Class of 1910 and is presently president of this class.

This gift brings Frank's donations to this college, located at South Hadley, Mass., to nearly one million dollars. Among his earlier contributions was the Ruth MacGregor Fund which he established in 1944 in his sister's memory. Frank gave another memorial to his sister some years ago, when he made a gift of one hundred thousand dollars to the Presbyterian Church in Tryon, for a church sanctuary. In this world of topsyturvy, when so much is needed better to educate our youth, it is a source of real joy to know that one of our '07 members has done so much to help others with what he has been able to earn.

Mrs. **Paul Cumings** sent me a note acknowledging my birthday letter to Paul of several months ago. Paul has much difficulty with his eyesight and can neither read nor write, so that his wife

is his amanuensis. They spent a very happy and busy summer on Cape Cod, where their three children and eight grandchildren have visited with them at various times.

It has been a real pleasure to put together the notes for this issue of The Review, because it did not take a lot of time to locate the material. You fellows mailed it in, and I simply wrote it up. If you have not sent in any news about yourself for a long time, a flood of letters would make the next issue of The Review an interesting one.—**Philip B. Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville, Mass.

'08

The first dinner meeting of the 1965-66 season will be held at the M.I.T. Faculty Club, Memorial Drive, Cambridge, on Wednesday, November 3, at 6 P.M. Our 57th Reunion was celebrated June 11, 12, and 13 at Melrose Inn, Harwich Port, Mass., on the Cape, and at Alumni Day in Cambridge on June 14. Present at some or all of the doings were Bill Booth, Jimmie Burch, Nick Carter, Fred Cole, Myron Davis, George Freethy, Leo Loeb, Paul Norton, Miles Sampson, Henry Sewell, Frank Towle. Their guests were Mesdames Nicki Patton, granddaughter of Jimmie Burch; Loeb; Davis; Freethy; Sewall. The social hour, preceding the banquet, was again held in the Armory. Following the banquet the "Pops" Concert with Arthur Fiedler was a fine wind up of our 57th Reunion.

We are sorry to report the deaths of the following: **Victor J. Blackwell** on July 4 at London, Ontario; **Archer C. Nichols** on August 7 at Wilmington, N.C.; **Burkett S. Clayton** on April 14, 1964, at Upper Darby, Pa.; and **Rowland B. Anthony** at Chicago, Ill., no date given.

A post card from **Winch Heath** said he had a visit from **Frank Sharman** and wife on August 15, 1965. . . . **Jimmie Burch** sent us news of the marriage of his granddaughter, Eva Marie (Nicki) Patton to Harold William Babbitt on August 21, 1965 in the Cottage Grove Avenue Presbyterian Church, Des Moines, Iowa.—**H. Leston Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles**, Treasurer, 26 Bullard Road, Weston 93, Mass.

'09

Alumni Day, which came on June 14, resembled, so far as the weather was concerned, the Alumni Day of our Fifty-fifth Reunion. It was uncomfortably cold and cloudy in the morning, and a cold rain followed the luncheon in the Great Court. As "elder statesmen" we were privileged to sit at a reserved table with waiter service under the big tent. Being adjacent to

the head table, we were very near the speakers and alumni guests. There were eleven of us there: John and Margaret Davis, Chet Dawes, Tom Desmond, Ed Howe, Joe Parker, Gardiner Perry, Art and Betty Shaw, Laurence Shaw, and George Wallis. Alice Desmond was staying in town at a Boston hotel but was physically unable to attend the alumni activities. Marcia Wallis, recovering from an earlier ailment, was also unable to be present. The luncheon was excellent and was followed by a business meeting of the Alumni Association in which its retiring president, Donald F. Carpenter, '22, commented on the activities of the Association during the past year and handed the gavel to the new president, Samuel A. Groves, '34. (President Carpenter's report has been mailed to the Alumni.) There were reports of the unusually large gifts from the classes of 1915, 1925, and 1940. President Stratton devoted most of his report to the present dormitory situation and the proposed new facilities. A complete report can be found in the July Review. During the day there were many very interesting programs and exhibits, which were summarized in the Alumni Day notice. The outstanding exhibit was a colored motion picture of astronaut White floating around in space outside his capsule. There were six of us at the banquet: John and Margaret Davis, Chet and Muriel Dawes, and Art and Betty Shaw. The day closed with the Pops Concert in Kresge Auditorium under the direction of Arthur Fiedler. This year the concert was concluded with "The Sons of M.I.T." rather than with the "Stein Song."

At the luncheon **Tom Desmond** told of some experiences of Alice and himself during a recent trip. They were so interesting that we requested Tom to write them for these notes.

"My wife Alice is now engaged in writing a fictionalized life of the daughter of Marie Antoinette. This will be a book with girls of about high school age especially in mind. It will be the nineteenth book Alice has published for older or younger children. Research in connection with this book gave us reasons for recent pleasant visits to both France and Italy (including an unexpected tour of a few miles in Yugoslavia). Our special objective in Italy was Gorizia, about forty miles north of Trieste. Gorizia was the burial place of many relatives of Marie Antoinette and of other members of the ruling families of the old Austro-Hungarian Empire. Traveling by automobile from Trieste toward Gorizia, we learned to our dismay that although Gorizia is on the Italian side of the border, it would be necessary to cross the frontier of Yugoslavia in order to reach our burial place convent. And our passport did not have any visa for Yugoslavia! It looked for a few bleak minutes like failure after our long journey. But fortunately Alice speaks French fluently, I speak it badly, and the head Yugoslavian official understood French (no English). Soon, therefore, (but after a few tears shed by Alice), the barrier across the road was lifted with smiles from all concerned and a lot of especially fervent 'Merci Beaucoup's from us."

In the July class notes it was stated that a Memorial Service for **Francis Loud** was to be held on Sunday, May 23, at the First Congregational Church, Weymouth Heights, where Francis was a deacon for many years. The class was well represented at the service by **John** and **Margaret Davis**, **Joe Parker**, **Ben Pepper**, **Ruth Congdon**, **Muriel** and **Chet Dawes**. Francis' brother, Dr. Norman Loud, and his wife came from their home in Edgewater, Fla. We were much impressed by the fact that Carl Peterson, '27, and Mrs. Peterson, who lived in the same house with Francis for twenty years, flew up from Puerto Rico solely to attend the service. The large attendance of Francis' friends attests to the high esteem in which he was held. The Reverend Theodore C. Schoonmaker, pastor of the church, conducted the service. He spoke of Francis' sincerity, high ideals, and many years of devotion and service to the church and to the community. . . . We have received from Kenneth S. Brock, Associate Director of the Alumni Fund, a copy of a letter to **Colonel F. D. Applin**, Medford, Ore., thanking him for a substantial current gift to the Alumni Fund as well as for a large sum which he has provided for the Institute in his will. These gifts are, of course, credited to the Class, and we all regret that we have had no news from Frank, at least for many years, and in thanking him in behalf of the class, we requested that he tell us something about himself. He was well known to us in Course VI and we called him "Appy." He was also the first-string pitcher on our class baseball team. . . . We received an obituary telling of the death in early May at the Newton-Wellesley Hospital, of **James J. Tobin**, IV, 79, of Newton Center. He was a civil engineer and owner-operator of his own contracting firm. He was graduated from Boston Latin School, Harvard College, and then he attended the Institute. He was a first lieutenant in the Quartermaster Corps in World War I and was a member of the War Production Board in World War II. Your Secretary remembers him as the right end on the class football team on which your Secretary played left end. Jim was an outstanding, husky player and took great pride in what he called the "barbarian tackle" in which he practically hurdled over the blocking backs and came down to nail the ball carrier. He is survived by a son, James J., Jr., two married daughters, and a brother. A requiem Mass was held at the Sacred Heart Church in Newton.

Early in July we received a note from **Albert Thornley** telling of the sudden death of **Ray Temple**. We wrote to Mrs. (Marion) Temple expressing the sympathy of the class as well as our own. She replied as follows: "Thank you very much, friend Chester, for your note of sympathy, which I appreciate very much. Yes, Ray died instantaneously while he was with our daughter Jean. They were getting into our car at the Motor Mart in Boston on Sunday, June 27, after a pleasant afternoon at the ball game. He was in perfect health, as far as we knew; however, he had slowed up in his activities lately, we had noticed. He was very fortunate to

work for a small concern which was glad to have him continue his work, although he was far beyond the usual 65 years of age. He enjoyed his work tremendously with Ruggles, Klingemann Manufacturing Company of Salem, Mass., with whom he had worked for 30 years.

His outside interests were his flower garden, genealogy, and his correspondence with numerous friends who were disabled in one way or another. He was very kind and thoughtful and, as you say, quiet and industrious and well-liked. He leaves a son, Allan B. Temple, who is treasurer of Sisalkraft Division of St. Regis Paper Company, Attleboro, a daughter, Mrs. Jean T. Hall, who is assistant treasurer of Workingmen's Co-operative Bank in Boston, and three grandchildren. Thank you for your interest in writing a tribute for Ray in the November Review."

We of the Class were all close friends of Ray during our four years at the Institute and have remained so during our alumni years. He continued his interest in the Class and its activities and we all remember seeing him and Marion at both the Fiftieth and Fifty-fifth Reunions. He was a close friend of **Henry Spencer**, as he was chief draftsman during the 1920's of the Blanchard Machine Company with which Henry has been prominently connected since graduation. The Class regrets the loss of one of its most loyal members.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretary, **George E. Wallis**, Wenham, Mass.

'10

I am including in the Class Notes a record of **Jack Babcock's** report on our 55th Reunion. I am sure every member received this information in the mail in September but for the record I am publishing it again in the Review.

"Our class held its 55th Reunion on Sunday, June 13, at the Hotel Continental, Cambridge, Mass. Those who attended all of our '1910' activities, as well as Alumni Day on Monday, June 14th, were: Harold and Jess Akerly, Rochester, N.Y.; Ken Armstrong, Opa-locka, Florida; Jack Babcock, Portland, Maine; Frank Bell, Dallas, Texas; Carroll Benton, Brooklyn, N.Y.; John Bierer, Waban; Bob and Marian Burnett, Fall River; Herb Cleverdon, Wellesley Hills; Art and Mary Curtis, West Peabody; Fred and Elizabeth Dewey, New York, N.Y.; John Gray and son (R.J.), Salem; Al and Janet Hague, Ossining, N.Y., and Pompano Beach, Fla.; Russ Hastings, Brookline; Ralph and Meta Horne, Malden; Fred Lufkin, Portland, Maine; George Lunt, Wellesley Hills; Hal Manson, Brookline; Bill and Annette O'Hearn, Wellesley Hills; Luke and Bernice ("Bun") Sawyer, Beaver Falls, Pa.; Carl and Irene Sittinger, Peterborough, N.H.; Walt and Romalda Spalding, Honolulu, Hawaii; and Jim and Elsie Tripp, New York, N.Y.; C. W. Wallouer, Wellesley Hills, attended our Class Dinner and Alumni Day. Roy and Gladys Briggs, Milton, were at the Class Luncheon. Murray Mel-

lish, Malden, also attended the Class Luncheon and both he and his wife, Eva, were at Alumni Day.

Our '1919' program included a Class Luncheon at which Dr. C. Stark Draper, Head of the M.I.T. Dept. of Aeronautics and Astronautics, gave a most interesting talk on gyroscopes, automatic flight control and inertial guidance of space vehicles (including the Apollo Moon Project). He has been closely associated with these and many other activities ever since his graduation from the Institute. **Russ Hastings** took a number of photographs.

Following an afternoon devoted to mingling with classmates and guests and relaxing informally, we reassembled for the traditional cocktail party at which Vice-president **Ralph Horne** and his wife, Meta, served as host and hostess. At 7 P.M. the Class Dinner was served, with **George Lunt**, our Class President, as toastmaster. After dinner, **Frank Bell** (our President from 1910 to 1950), as Chairman, presented the report of the Nominating Committee. The following officers were re-elected for the next five-year period: President, **George Lunt**; Vice-president, **Ralph Horne**; Secretary, **Herb Cleverdon**; and Reunion Chairman, **Jack Babcock**. A report on current class membership, the joint activities of our "1910" Reunion Committee and the Alumni Day Committee, and a brief resume of our 55th and previous 5-year reunions was presented by Jack Babcock. Later **Al Hague** entertained us with colored slides taken at our 50th Reunion at the Charterhouse Motor Hotel in 1960.

As noted earlier, almost all of those at our Class Reunion also attended Alumni Day on June 14th. Details of Alumni Day will be covered in the regular columns of the Technology Review.

Aside from the foregoing the only other news I have is that **Ralph Horne** has been presented with a certificate of Honorary Membership in the Boston Society of Civil Engineers, which reads as follows: "He has attained outstanding achievements in the Field of Sanitary Engineering as a practicing Consultant, and has set an example for young engineers to follow. He has given freely of his talents to Philanthropic and Governmental Agencies and to this Society as Past President." In addition to the above **Ralph** was also honored as follows: "The Society received \$3000 from the Directors of Fay, Spofford & Thorndike, Inc., to create a Fund to be called the "Ralph W. Horne Fund," the income from which shall be devoted in part to a prize or certificate to be awarded annually to a Member of BSCE selected by a committee, as having been outstanding in unpaid public service in Municipal, State, or Federal elective or appointive posts; or in Philanthropic activity in the public interest."—**Herbert S. Cleverdon**, Secretary, 120 Tremont St., Boston, Mass.

Herlihy for his long and faithful work as Class Treasurer and Acting Secretary. . . . A letter relayed to me by **Herlihy** from **Sumner Willis** states that he is now working as architect's representative on a 25-million-dollar hospital training center for the New York State University in Brooklyn. . . . In another letter **Jim Campbell** of Eadie, Freund and Campbell enclosed a reprint of an article by him in "Heating, Piping & Air Conditioning" about a pressure hot water system designed by his firm for the General Diaper Service of Elmhurst, N.Y. I read it with interest.

Only five members of the Class attended Alumni Day last June, a poor showing. Besides the Secretary there were O. W. Stewart and Carl Richmond with their wives, Oliver Powell and Alexander Yereance. Oliver is making a tour of the country and planned it to be here at that time. Yereance and I were the only ones to stay through the cold day for the evening program. . . . I heard from **D. P. Allen** in late June that he and his wife are in fairly good health at their place in Lusby, Md.; though he is partially paralyzed from a shock of a few years back, and got his granddaughter to type the letter for him. He is hoping an upcoming operation will restore some of the use of his arm. He suggested that **Roy MacPherson** might make up a crew of Classmates and sail his boat down to Allen's private wharf in Lusby.

A half column in the Springfield News of April 28 reported that our famous classmate **Ralph Walker** gave a talk on "What is Beautiful, What is Good?" at Mt. Holyoke College, the newspaper gave a long list of honors that **Ralph** has received. . . . **Ed** and **Sadie Sisson** spent the month of June traveling through Holland, Denmark, Sweden and Norway. He is still active with his son and son-in-law in the steel fabricating firm that he has owned and managed for so long. When I called on him recently he showed me some beautiful porcelain figurines that he brought from Denmark, some paintings that he got in Paris, and others from Japan. . . . On July 14 their neighbors gave **Grace** and **Harry Tisdale** a surprise party on their 48th wedding anniversary. . . . On July 30 **O. W. Stewart** appeared on Channel 4, Boston Television, on the Farm and Home Hour and gave an interesting and instructive talk on blueberry raising, a subject on which he has become an authority. The show was in color, and the berries looked luscious. . . . On a brief visit to Cape Cod, I called on **Ernest Batty** and with him visited **Alex Yereance** and **Prof. Gordon Wilkes**. **Batty** recently moved into a house he had built on Mashantum Road in Dennis. The house is adjacent to the home of his daughter and her husband. **Batty** is still working part time for **Charles Kennedy**, a real estate developer on the Cape. **Yereance** spends his summers in half of a duplex house that he owns on Old Wharf Road in South Harwich. His daughter and her large family occupy the other half of the house. **Wilkes** built himself a fine retirement home half a mile from Main Street, East Orleans, on a point of land projecting

into a salt pond. Visits like this make being Secretary worth while.

On September 4 **Gertrude** and **O. W. Stewart** celebrated their golden wedding at a party given by their four sons in St. John Episcopal Church social hall in Duxbury. **Alma** and I were among the 250 who attended the gala time. . . . Reports from the 1964-65 Alumni Fund show our Class in first place in percentage of active members participating, 67%. Well done and keep it up. . . . In a recent letter **Samuel M. Schmidt**, 1171 Towne St., Cincinnati, Ohio, 45216, said he is doing a lot of thinking about a scientific approach to theology, particularly as a means of growing old gracefully. He is about five years older than the class average, but is looking forward hopefully to attending the 55-year reunion next June. This is a sentiment every member of the class should feel. . . . This set of notes is longer than usual. Help me keep it up. Write to **Obie**.—**Oberlin S. Clark**, Secretary-Treasurer, 50 Leonard Rd., North Weymouth, Mass. 02191

'12

The 1912 interim Reunion was a grand success. The following were there: **Mr.** and **Mrs. Jonathan A. Noyes**, **Mr.** and **Mrs. Harold D. Mitchell**, **Mr.** and **Mrs. Harold G. Manning**, **Mr.** and **Mrs. Joseph L. Champagne**, **Mr.** and **Mrs. Raymond E. Wilson**, **Mr.** and **Mrs. Cyrus F. Springall**, **Mr.** and **Mrs. Walter W. Lang**, **Mr.** and **Mrs. John H. Lenaerts**, **Mr.** and **Mrs. John M. Pettingell**, **Mr.** and **Mrs. Jerome C. Hunsaker**, **Mr.** and **Mrs. F. J. Shepard, Jr.**, **Robert J. Wiseman**, **James A. Cook**, **Albion R. Davis**, **Harold C. Mabbott**, **Frederick H. Busby**, **Willis R. Salisbury**, and **William L. Collins**. Thanks to **Albion Davis** the arrangements were very well made and we were all comfortably taken care of. The cocktail party in the penthouse of the McCormick Dormitory was really something to remember. We had a beautiful sunset over the Charles River and a wonderful view of the new city of Boston. Everyone there seemed to feel that it was worth repeating. At a business meeting following the banquet, **Albion Davis** was unanimously elected Class President. For many years **Albion** has represented us as Class Agent and has always seemed to shoulder any responsibilities requested.

A telegram from **Dr. Henry A. Babcock** from Glendale, Calif., stated that he would be unable to attend. He spends his summers at Goshen, Mass., and I had intended to drop in on him but was unable to do so.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 9, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas, 36, Texas.

'13

Your 52nd Class Reunion was enjoyed by a small but enthusiastic group of thirteneers and guests at Clauson's Inn, North

'11

To start off the new year's set of notes, I want to express the appreciation of all members of the Class to **John**

Falmouth on Cape Cod. The celebrators on the Cape were: The Brewsters; the George Bakemans; the Arthur Browns; the Phil Capens; the Hildy Carlsons; the Burt Cushings; Jack Farwell; Gene MacDonald; the Dave Nasons; the Bion Pierces; the Ray Ruders (Janet Capen); the Geoffrey Rollasons; the Herb Shaws; and Chas Thompson. The greater part of the time was spent renewing old friendships and reminiscing, particularly at the very enjoyable meal-time; some time was devoted to the many pleasant drives in the vicinity or to just relaxing. The highlights were the class picture, the social hour and the class banquet. Following a delightful dinner, a brief class meeting was held dealing principally with the question of sharing the facilities at the Oyster Harbors Club in 1968 with the Class of 1923 (President Stratton's class). Your Secretary was instructed to invite the members of 1923 to hold their reunion at the club. We are very much indebted to **Bill Brewster** for his usual efficient showing of audio and movies of the voyage of the Second Mayflower from England to Plymouth, Mass. Also, a very instructive but informal lecture was provided by Ray Ruder (our son-in-law) on the ever-changing foreign affairs; he had spent nearly a week at the Naval War College at Newport, R.I., the preceding week. Ray's descriptions were very enlightening, but we realize that he omitted many top secrets. Thus we pass another mile-stone. Considerable correspondence and phone calls have been exchanged between Dave Skinner, the President of the Class of 1923, M.I.T.; Dick Knowlton, manager at Oyster Harbors Club; and your Secretary. We are all very happily satisfied that these two outstanding classes will enjoy sharing the facilities of the club in 1968; the Class of 1913 will still have priority. We were very much pleased to visit on Alumni Day at the Institute with Charlotte Sage; Allan Waite; Walt Muther and his charming daughter, Mrs. Lawton; Burt Cushing; the Heinie Gliddens; then for the reception and dinner Bill and Ellen Brewster joined our group. . . . Your Scribe has come out of retirement for the third time. He has lately been appointed Assistant Executive Director of the Urban Renewal Project in his home town of Canton. This fulfills a life-time desire to modernize this continuous growing town, with the assistance of public-spirited citizens and with the guidance of several other professional planners. . . . **Bill Herbert** writes briefly: "Finally retired last year, and find it difficult to be concerned with the woes of the world. My interest now is in three well-established sons and then seven teenagers (U.C. and Yale so far). Regards to all the old 1913 jokers." Thanks Bill, for that old Tech humor is still precious. . . . **Ken Hamilton** bursts forth again: "I'm sorry but I cannot attend (reunion) as Claire is not feeling well and is under doctor's treatment. Nothing serious but he does not want her to take trips or get excited. Please give my regards to all the fellows and I will try again sometime to attend. Am feeling fine and doing a little selling of industrial items to keep busy." We are glad to report that Claire and Ken have been enjoying the sea breezes on

the coast of Maine and are both feeling well, as stated by Doc Hamilton, whom we met at the Annual Officers Conference at the Institute. . . . A very thoughtful card was received from **Gordon Howie**, postmarked Clearwater, Fla., and we quote, "Thanks for your card. But our trip North comes on dates that make it hard to attend the Reunion, much as we wish to be with that grand group. Sorry to hear of **Lester Gustin's** poor health. Let's hope he will not be too uncomfortable and will come along in good shape. For the Capens, Ethel and I wish good, happy and comfortable health. And best wishes for a good reunion." . . . Again, we must report the sad news together with the more joyful. Mrs. Millard W. Merrill reports the death of our beloved classmate Joe, which occurred on May 8, 1965. Also **Jack Horsch** furnished a more detailed report and we quote: **Millard W. 'Joe' Merrill**, Class of '13, Course XIV, passed away on May 8, 1965. A graduate of Newburyport High School, Class of 1908, he waited a year as a postgraduate until old enough to enter Tech. He commuted by train from Salisbury for five years, one year while he was an assistant in Electrochemistry at M.I.T. In 1914 he went with the Chile Exploration Company, Chuquicamata, Chile. In 1918 he resigned to get into World War I, went to Edgewood Arsenal, and served in the electrolytic chlorine plant as Sergeant First Class, Chemical Warfare Service. After the War, Joe went with U.S. Metals Refining Company; he operated the silver refinery, and later graduated to purchasing agent. He retired in 1957 and joined the Caroli Travel Agency in Plainfield, N.J., where his life-long interest in and familiarity with railroads gave him a useful background. Joe was a past president of the New York Society of Purchasing Agents, a member of the Electrochemical Society and of the American Institute of Mining and Metallurgical Engineers. Besides his wife, Alice, he leaves a daughter and three sons, all married, and 13 grandchildren. At the time of his death he and Alice lived in their modern ranch house in beautiful Basking Ridge, N.J. In recent years they both had travelled rather extensively to the national parks and other areas in the United States and Canada." We shall all miss "Joe" and we offered Alice sincere condolences soon after his death. We received an acknowledgement from her. **Bill Horsch** also expressed his regrets that he and his wife Gertrude could not join us at the 52nd Reunion and sent his regards to all inquiring classmates. Well, my hearties, look for more news next month, including Larry and Marion Hart.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

Robert Wharton Moorehouse died August 8, 1965. His home was at 15 Elliott Ave., Bryn Mawr, Pa. His wife, the former Dorothy Button, survives him, and the Class of 1914 extends its sympathies. His

business associations over the years included the R. T. Morehouse Paper Mill, the Barrett Company, and for 20 years the Goodyear Tire and Rubber Company in Akron, where he was manager of chemical engineering. He was a member of the Historical Society of Pennsylvania, the Pennsylvania Society of Fine Arts and the Pennsylvania Society for the Preservation of Landmarks. Bob attended many of the 1914 Reunions and we shall miss him.

As these notes are penned early in September, several of our class have just returned from foreign excursions. **Hugh** and **Lois Chatfield** and nine year old Debbie made the grand tour, about two months, through Europe. . . . **Harold** and **Florence Richmond** are back from their annual Mediterranean cruise. . . . We had a long enthusiastic letter from **Alden Waitt**, who extols the virtues of Portugal. We may want to quote him later—after we see if we can sell the letter to some travel agency. We have no doubt that other of our classmates enjoyed equally enlightening travels during the past summer.

The Boston Herald of July 25, 1965, contained the following interesting item: "Mrs. Clark Mr. Fiske Are Married. In the Winter Street Congregational Church, Bath, Maine, Mrs. James Irving Clarke and Mr. **Charles Parker Fiske** were married yesterday afternoon. The Rev. Earl F. Mathewson performed the ceremony. He was assisted by the Rev. Martin Van Buren Sargent. A reception followed at Cold Spring Farm. Mrs. Fiske was given in marriage by her brother, Mr. Clarence Whiting Dunham. The matron of honor was Mrs. Ben Stahl of Sarasota, Fla. The bride's grandniece, Laurie Dunham, was the flower girl.

"Mr. Robert Bishop Fiske was his brother's best man. The ushers were Mr. George Mann Fiske, son of the bridegroom and Mr. Halstead Frederick Dunham, the bride's nephew.

"Mrs. Fiske is an artist who has exhibited her oil paintings and ceramic sculptures under the name of G. Dunham Clarke.

"Mr. Fiske is a graduate of Massachusetts Institute of Technology. He is a member of the Union Club and the University Club, New York City, and the Country Club, Brookline, and the Cumberland Club, Portland, Me.

"The couple will divide their time between Maine, Florida, and Barbados."

The class extends its best wishes to the new bride and groom.

Following up changes in address often brings interesting information and evidence of the extremely varied experiences of our classmates, as for example, a letter from **Earl O. Turner**, now living in Harvard, Mass.

"Dear Herman, We appreciated your nice note welcoming us back to the 'land of our fathers'. The move came a little earlier than we had planned. I had a mild heart attack last Fall which persuaded me that my travels between Canada and our home in Florida, with attention also to the old homestead here, should be somewhat slowed down. And as sometimes happens, a most acceptable purchaser of our home in Fredericton, namely our own

University of New Brunswick, appeared on the scene. It was something of a sentimental struggle to make the decision to let our house go, since we built it 43 years ago, but the winters in New Brunswick are too tough for year-round residence and we have a house in Florida.

"The years in the university have been delightful; we had the late Lord Beaverbrook as our Chancellor and for some time as our next-door neighbor. When he was our neighbor in Fredericton, many world-famous people were with us. These included President Kennedy, Lord and Lady Home, Queen Elizabeth and Prince Philip twice, and many others. With his Lordship these meetings seemed so informal that it was difficult to realize how fortunate we really were.

"Canada and Canadians have been so good to us in our forty-six years at the University that it is hard indeed to leave.

"Thanks again for your best wishes. Earle."

Alumni Day on June 13 brought out a modest turnout of 14'ers and their wives, including Harold and Florence Richmond, Tom and Louise Callahan, Leicester and Alma Hamilton, Art Peaslee, Harold Wilkins, Arthur Petts, Levi Duff and daughter Nan, and Rudy and Jessie Zecha, also your Secretary and Dorothy. A few classes have amplified the class reunion aspects of Alumni Day by starting a class get-together at a nearby hotel on the afternoon of the previous day. If this looks good to you, drop us a line and arrangements can be made next year. Drop us a line anyhow. You'd be surprised at how many fourteeners would like to know where you are and what you are doing—even just relaxing.

We saw **O. C. Hall** earlier in the summer, after his car had run off the road on Rt. 1 in Maine and got pretty badly bent up, while Ollie was saved from serious injury by his seat belt. A month or so later we had a letter from a California hospital where he was recuperating from a heart attack, presumably induced by the exertion of climbing in the Yosemite area. He is back home again now in Charlottesville, Va. Best wishes, and please, Ollie be careful. You don't have to go to extremes to get in the news.—**Herman A. Affel**, Secretary, Rome, Maine, Mail: RFD 2, Oakland, Maine; **R. P. Dinsmore**, President, 9 Overwood Rd., Akron, Ohio; **Charles H. Chatfield**, Assistant Secretary and Alumni Fund Agent, 177 Steele Rd., West Hartford, Conn.

15

What a Reunion! What a Class!! \$2,078,404 for our Fiftieth Fund gift was the largest amount ever given by any Class at any time in the history of M.I.T. With the largest attendance of returning Classmates for a Fiftieth Reunion, we are, indeed, the Class Supreme and are entitled to every superlative. For all this we owe a deep debt of thanks and appreciation, first to **Ben Neal** for his dedication, devotion, time and zeal in his tireless effort in directing our Fiftieth Fund with an easy

to take "soft sell." My personal gratitude to the Reunion Committee, the course representatives who stirred up their course-mates around the country and to **Larry Landers**, **Reggie Foster**, **Wally Pike**, **Bur Swain**, **Louie Young** and the others who helped with key jobs. A rousing cheer to **Mona Lacy** and her committee, they did such an admirable job for the visiting ladies on Saturday while we were away at the Cape, with particular thanks to **Mona** and **Clive** for their generous contribution to the entire ladies entertainment program. All in all, a real championship team, working and playing well together, that could win a pennant in any Reunion league. Here is a good chance to express the appreciation of the Committee and myself, personally, to the secretaries in the Alumni Association office at M.I.T. These office girls were always ready, willing and cheerful with their time, co-operation, and helpful information, which proved so valuable in our preparations. The first greetings were Friday morning, as 53 of us assembled at the Cage to don our caps and gowns for the academic procession at Commencement. We sat on the stage with the dignitaries and watched the awarding of the Class of 1965 degrees. There were probably more doctorates awarded than there were graduates in our June 1915 Class. Next, we were guests of President Stratton for lunch in the Great Court. **Jack Dalton** spoke for our class. With wives and guests present there were many fond greetings among old friends. Immediately after lunch, we left in cars for Coonamessett for our stag reunion. With excellent Cape weather, except for a little rain and wind on Sunday, we thoroughly enjoyed this delightful place with its excellent food and service and bar. Seventy-six classmates and five guests made this a tremendous party. At the Saturday night banquet, **Mary Plummer Rice** from Paris, France, graced our head table and with her charming manner said a few touching words about 1915 and her place in it. We presented Ben with a sterling Paul Revere bowl, suitably engraved, and his secretary **Joyce Bardo** with a sterling topped glass candy jar. This young lady worked constantly and tirelessly with Ben on the Fiftieth Fund and deserves our well-earned thanks. No one else but she and Ben could have or would have done that job. With champagne donated by **Jac Sindler**, the banquet opened with toasts to "1915 our Class" to "M.I.T. our Alma Mater." And then under **Larry Landers'** leadership the class presented me with a purse of \$600. This was collected spontaneously at Coonamessett by **Larry** and his deputies. Over these many years you classmates have been very good to Fran and me, but this uncalled for and unexpected generosity overwhelmed me and left me without appropriate words. Anything I might say would fall far short of properly or possibly expressing myself, so I leave you all to judge how I feel. Many thanks, many blessings to you all. At the dinner **Larry Bailey** supplied cartons of the candy "Life Savers" made on a machine he designed some time ago. **Ben Hurvitz** supplied cigarettes. To 1916, holding a reunion farther down the Cape at Chat-

ham, we wired "Reunion greetings from the best Class to the next best Class" and they wired back "Happy Reunion to you. Enjoy it to the fullest while you may. Remember, imitation is the sincerest form of flattery. Thanks." That last line can be read either way—a sharp crowd! Sunday we were pleased to welcome a delegation from 1916 headed by **Harold Dodge**, their hard-scrivening secretary, and **Don Webster** and some of their officers and wives. Also **Ellen** and **Ellis Brewster**, 1913, **Jean** and **Jack Mohr**, 1950, who were at his 15th reunion nearby. It certainly was pleasant to see these good old friends of 1915. Sunday noon at Popponessett Beach, which is a sort of branch of Coonamessett a little farther along on the Cape, we had a delightful shore dinner. Instead of opening at noon, as we stated in our notices, the bar opened at 1 o'clock (it was Sunday). Those who survived that 1 o'clock rush enjoyed a delicious shore dinner of steamed clams, lobsters, corn, and watermelon. And here **Al Sampson**, the Pirate, and **Jack Dalton** distributed the reunion souvenir, best described by **Al** in his flowery and florid style: "Hell was a poppin at Popponessett Inn on Sunday morning. After three days the energetic and combined efforts of the class sleuths had failed to disclose the profound mystery of the super-duper 50th anniversary souvenir and its donors. Tempers flared. The meek became the mighty. Consternation reared its ugly head! Just as things neared the riot stage there came a roar and a rattle from the road and out of stifling dust and petrochemical fumes came a long sleek shiny 1965 Cadillac. Therein were the missing sponsors—**Sam Berke** at the wheel, and reclining in the luxurious comfort of the back seat **Larry Bailey**, **Jac Sindler**, and **Pop Wood**, all smiling like the cat who ate the canary. Drowning the shouts of enthusiastic welcome to these returning heroes came the euphonious crash of **Pirate Rooney** arriving in a crate, circa 1892, loaded with loot and a crew of low characters. Pandemonium reigned as the plaudits of 1915 rivaled the exit of the Volstead Act. Lusty helpings of steamed clams, delicious lobster liberally sterilized with Wisconsin's corn products gave vim and vigor to their salute. Forgotten was the finishing banquet course of watermelon and nary a seed in rosy repose was disturbed. In lusty and exotic appreciation as **Prexie Dalton** called their names each accepted his long anticipated prize—a beautifully wrapped parcel in a special M.I.T. shopping bag. **Sam Berke** bottled his finest bourbon in a 50th anniversary special designed container that will be the pride of the owner forever, bearing a most unique pouring device that will never waste a drop of this nectar of the gods. **Jac Sindler** presented six personally designed M.I.T. coasters in true Tech red, 'Pop' **Wood** the durable insignia shopping bag and **Larry Bailey** a liberal supply of **Peppermint Life Savers** to fool the pastor should he call unexpectedly. Once again **Life** goes on, leaving on the sun-kissed beach of Popponessett Memories neither **Time** nor **Tide** nor **Tempest** with its rippling, **Storm-tossed** azure waters will

ever wash away." **Johnnie O'Brien** and his nephew and **David Hamburg** joined us at Popponessett and we were glad to have them with us. Returning to Boston on Sunday afternoon, we were all ready for Alumni Day at M.I.T. on Monday. At lunch in the Great Court, Ben made a glowing presentation of our record-breaking 50th Fund gift of \$2,078,404. Ben's attractive daughter, Mrs. Barbara Dearman, sat with him at the head table. From this lunch, in the cold, pouring rain (not requested nor condoned by the committee), we gathered at our annual Class cocktail party at the M.I.T. Faculty Club. A record attendance of 140, including families and guests, enjoyed Al and Barbara's annual party. This is best described by Al's flowery literary style: "O' Sun, and Skies, and Clouds of June/And, our New England Weather./Made merrier the hour or two,/ Fifteeners spent together. Monday's dreary, lowering clouds sent wisps of marrow-chilling fog into the tents of the Great Court where some 100 Fifteeners had gathered to pay homage to their alma mater. Welcome, indeed, was Amiable Azel's call to the flesh pots of the "Fling of the Century" 1915 Cocktail Party, and, some 140 classmates, progeny, and guests promptly gathered in the Faculty Club lounge at four o'clock. There, aloof from the clash of the city and in the quiet murmur of the bi-syllabic word, Aortas were activated, cardiac cadences co-ordinated, and torsos thawed. There, the years rolled back. Youth bloomed again; eyes sparkled as of yore; cheeks flushed, as Barbara's Geisha Girls passed crunchy confections, munchy mushrooms, sea food snacks, tasty tid-bits, and refilled fragile flagons with the aged ambrosias. There—two ever to be treasured golden hours passed in a crescendo of conviviality of Auld Acquaintance as our Guest of Honor, Mary Plummer Rice received in a charming and regal manner. There—the sons and daughters and helpmates were honored for their interest and loyalty, and fitting tribute paid to the courage and sheer determination of purpose shown by the **Casselmans, Hoopers, Marions, Woythalers**, and many others. All too soon the buses arrived, and, at six thirty, escorted by Cambridge's finest, all were delivered safely to share the bounty of the alumni banquet and the soothing Fiedler symphonies of tympanic delicacy in Kresge Auditorium. As the din of departure faded, the sodden clouds lifted and a snatch of gorgeous sunset cast a roseate glow across the Charles, bearing their cryptic message 'C U 66.' Again—Nineteen Fifteen, The Class Supreme—where the glow of kindly hearts and warm grasps of friendly hands shall ever prevail, makes life and its living sweeter as we approach the day when Time and Eternity meet." Many visitors from other classes, whom we're always glad to see and welcome, joined us—**Pearl and Al Wechsler**, 1921, **Glenn Jackson**, 1927, **Jane and Jim Hoey**, 1943, **Dick Feingold**, 1943, widows of our Class—**Kath Howlett**, **Haya Hamburg**, **Ida Eisenberg**, **Ruthie Place**, Mrs. **Reg Pollard** and **Mary Scully** were a pleasant addition to the day. At our age the buses

provided by the thoughtful committee to take us from our cocktail party over to the alumni dinner at The Cage were life-savers. Our gay week-end closed with a pop concert in Kresge by the Boston Pops Orchestra. Present at our reunion were—**Helen and Bert Adams**, **Phil Alger**, **Alice and Herb Anderson**, **Larry Bailey**, **Doug Baker**, **Evelyn and Sam Berke**, **Lucius and Mrs. Bigelow**, **Ken and Mrs. Boynton**, **Bill and Marjorie Brackett**, **Wayne Bradley**, **Everett and Mrs. Brigham**, **Marjorie and Whit Brown** and family, **Mary and Evers Burtner**, **Orton and Mrs. Camp**, **Bridge Casselman** and daughter, **Verta and Jerry Coldwell**, **Alton Cook**, **Frances and Henry Daley**, **John Dalton**, **Jack and Mrs. Dalton**, **Alan and Mrs. Dana**, **Ray and Mrs. DeLano**, **George and Mrs. Easter**, **Ellis Ellicott**, **Jo and Reggie Foster**, **Clarence and Mrs. Hansen** and family, **Helen and Otto Hilbert**, **Tess and Gabe Hilton**, **Hope and Bill Holway**, **Don Hooper**, **Dave Hughes**, **Ben and Mrs. Hurvitz**, **Takang and Mrs. Kao**, **Mona and Clive Lacy**, **Horatio Lamson**, **Fan and Larry Landers**, **Harry and Mrs. Leeb**, **Joe and Mrs. Livermore**, **Fran and Azel Mack**, **Doug McMurtrie** and son, **Marion and Vince Maconi**, **Boots and Helen Malone** and daughter **Pat**, **Virginia and Hank Marion**, **Peter Masucci**, **Bill and Mrs. Mellema**, **Archie Morrison**, **Helen and Herm Morse**, **Frank and Mrs. Murphy**, **Harry and Lucy Murphy** and family, **Ben Neal** and daughters, **Barbara and Joyce Bardo**, **Bee and Charlie Norton**, **Johnnie O'Brien** and family, **Frank Parsons**, **Gil and Mrs. Peakes**, **Harold and Mrs. Pickering**, **Ardelle and Wally Pike**, **Opal and Forrest Purinton**, **Larry Quirk**, **Mary Plummer Rice**, **Ethel and Pirate Rooney** and family, **Margaret and Chet Runels**, **Al Sampson**, **Vince and Mrs. Sauchelli**, **Sol Schneider**, **Cliff and Mrs. Sifton**, **Jac Sindler**, **Admiral Bill Smith**, **Bill Spencer**, **Margaret and Ray Stringfield**, **Joan and Bur Swain**, **Speed Swift** and guest **J. E. Bewley**, **Barbara Thomas** with **Virginia** and **Paul Johnston**, 1921, **Pat and Ray Walcott**, **Ed Walker**, **Virge Wardwell**, **Fred and Mrs. Waters**, **Easty Weaver**, **Bob Welles**, **Herb Whitcomb**, **Helen and Ed Whiting**, **Mazie and Speed Williams**, **Charlotte and Pop Wood**, **Katherine and Max Woythaler** and son **Bill** and guest, **Louie Zepfler**, **Louie Young**. That's a long list to check and if I have omitted anyone, my apologies to you. Guests joining us at different times were **David Hamburg**, **Jim Hoey** and **Dick Feingold**, both 1943, **Gerry Rooney** and **Bill and Jeanette Sheils**, **Herb Eisenberg**, 1952. All nice young people. **Takang Kao**, originally listed as living in Taiwan, now lives in San Francisco and will be on our mailing list. It was good to see him and welcome him back with us. Al and Barbara's Annual Class Cocktail Party at the M.I.T. Faculty Club is the highlight of the Alumni Day activities for us. Now firmly established, it is set again for next year and we hope to see everyone there with family, friends and guests. . . . On July 1 **Barbara Thomas** retired from her position in the physics department and received many gifts from her associates at a tea they gave her. This is a richly

deserved award for **Barbara** for her years of loyal and devoted work and we wish her a long, happy and enjoyable retirement. She's always been a staunch friend to 1915. . . . The quinquennial chess game between **Phil Alger** and **Easty Weaver**, with **Doug Baker** and **Gardiner Wilson** as audience, went on hour after hour, undisturbed by any of the surrounding gayeties. There's serious concentration for you. Maybe they'll finish this interminable game at our 75th! Early in our planning, the big job was to locate **Mary Rice** and be sure of her attending the reunion. Al pursued her relentlessly (by mail) and was finally rewarded by the letter from **Mary** (in Washington) shortly after her arrival from Paris: "Such a trip your kind letter has taken—to California, to New York, to two Washington addresses, and it has finally caught me. Your March 20th letter never came and I am embarrassed to cause you so much trouble—no doubt as much as all the men in the class put together. On June 11th I'll be on hand with our class and will be thrilled to be wearing a cap and gown at last. Many thanks to you and Azel for all your trouble." Well, **Mary** lived up to all the top billing she received and really stopped the show with her pleasant and gracious manner. She was the center of many small friendly groups of animated talkers. At our Saturday night banquet the cancellations forced us to miss some very good men whom we would have liked to be with us—**Earle Brown**, **Ted Brown**, **Frank Boynton**, **Maurice Brandt**, **Ralph Hart**, **Clive Lacy**, **Thayer MacBride**, **Bob Mitchell** and **Ed Sullivan**. Long distance competitors were: **Lucius Bigelow**, **Durham, N. C.**; **Ken Boynton**, **Biltmore Forest, N. C.**; **Everett Brigham**, **Daytona Beach**; **Gabe Hilton**, **Clearwater, Fla.**; **Bridge Casselman**, **Harrisonburg, Va.**; **Ellis Ellicott** and **Bill Spencer**, **Baltimore**; **Bill Holway**, **Tulsa**; **Louie Zepfler**, **Tucson**; **Otto Hilbert**, **Corning, N. Y.**; **Bud Walker**, **Batavia, N. Y.**; **George Easter**, **Buffalo, N. Y.**; **Ben Neal**, **Lockport, N. Y.**; **Dave Hughes**, **Bill Mellema**, **Ray Stringfield** and **Bob Welles**, all from **Los Angeles**. **Charlie Norton** did an excellent job as Treasurer, checking out the payees from **Coonamessett** and credit to him. As an engineer, his accounts balanced. Many thanks, **Charlie**. Our June 1915 graduating class numbered 309, including only 3 doctorates. The total original Class mailing list of all registered at any time with 1915 was approximately 580. The Class roll at reunion time was 269 living (including 10 in foreign lands), 263 deceased and 48 drop outs with no addresses. To those 263 fine old friends and Classmates who have passed on, we all stood for a silent tribute to their memories. May their souls rest in Eternal Peace. The evening closed with a word from each of the Committee at the head table, and presentations to **Ben** and **Joyce**, and **Mary's** charming and gracious class sentiment. Next month's column will give you excerpts from the many friendly and rewarding letters our Classmates have written me.—**Azel W. Mack**, Class Secretary, 100 Memorial Drive, Cambridge, Mass. 02142.

It's pretty hard to realize that the 49th Reunion, not the 48th or the 47th, was the one that passed into history this last June 11-14, and that directly ahead of us is the big one that all the old folks have been talking about, the 50th, no less! The 49th at Chatham Bars Inn was an especially comfortable one—fine weather, "who-cares" golf scores, wonderful meals, gatherings in good old Cottage G, all climaxed with a super lobster clambake on the water front at the Inn, a clambake of a quality that has helped to make New England famous. Those in attendance numbered 38 and included the Joe Barkers, the Steve Brophys, the Willard Browns, Jack Burbank, Harold Dodge, Jim Evans, the Ralph Fletchers, the Barney Gordons, the Cy Guethings, Maurie Holland, the Emory Kemps, the Bill Leaches, our hard-working honorary member Bob O'Brien, the Dave Pattens, the Charlie Reeds, the Izzy Richmonds, Ed Savage as a lifesaver on transportation, the Henry Shepards, Peb Stone, the Hy Ullians and guest Mr. Silber, and the Don Websters. Those in attendance at the Alumni Day luncheon on Monday in Cambridge included the Steve Brophys, the Willard Browns; Harold Dodge, the Ralph Fletchers, Dick Hunneman, Shatswell Ober, the Dave Pattens, Henry Shepard, Peb Stone, the Hy Ullians, and Don Webster.

Speaking statistically, the Ullians came the shortest distance (less than two miles, Chatham), the Leaches traveled the longest distance (1680 miles, Austin, Texas), and who might we say was average? Assuming distances as the crow flies, the average distance for the 38 attendees was 315 miles, and since no one came a distance of 315 miles, there wasn't an average man there.

There were no heavy schedules or plans for the reunion, but a class meeting was held to outline the plans for the 50th reunion next June. **Steve Brophy**, who has chaired all 5-year reunions since Time One, from the 5th to the 45th, will be chairman of the 50th. He designated four regional vice chairmen—**Jim Evans**, in the middle Atlantic states; **Cy Guething**, in the Mid-West; **Vert Young** in the South; **Irv McDaniel** in the West, and **Ralph Fletcher** in New England. More in later issues about the 50th.

Peb Stone, **Willard Brown**, and **Bob O'Brien** (Honorary Member) have helped us to list some of the items of interest that marked the days of the reunion and Alumni Day. Once again we had our Class headquarters in what to us is grand old Cottage G, over whose entrance was hung with difficulty the huge banner of 1.9.1.6. And it was in front of this cottage that the reunion Class picture was taken before the banquet on Saturday night, and that the surprise presentation was made of three M.I.T. chairs to the Three Busy Bees: **Joe Barker**, Vice President and Reunion Gift Chairman; **Bill Barrett** (in absentia), Class Agent; and **Steve Brophy**, Reunion Chairman. Now for some of the items:

the problems of keeping out of sight three huge cartons with the three to-be-presented M.I.T. chairs; the first-time-attending wives, **Alice** (Willard) **Brown** and **Millie** (Charlie) **Reed** and their plans to come again; the clear blue skies and blue ocean waters as seen from the front porch of the Inn; the feel of the air that gives more than a clue as to why people love the Cape; the flight of **Cy Guething** with **Izzy Richmond** and his plane to Montauk Point for a swim and lunch at a deluxe hotel; **Anne Richmond** asking for the beloved, but absent **Irv** and **Kay McDaniel**; the big banquet on Saturday night with no set speeches but with **Barney Gordon's** request singing of Old Man River; the afternoon trek of two carloads to a cocktail party at the **George Dandrows'** (22) beautiful waterfront home in Chatham (and what did **George** mean when he said he planned to be out of town when '16 arrived); the cottage's warm fireplace fires of comfort when the evening cold came on; **Cy Guething** and **Harold Dodge** and their early morning (6:00 a.m. or so) walks on the shore; the chilling coldness under the tent at the luncheon and presentations on Monday in Cambridge; the trip of a full carful to Coonamessett with expert chauffeur **Sibyl Fletcher** at the wheel, to visit the 15ers and to see how things looked at a 50th reunion—"something lacking there, no women" said one; shopping adventures for the ladies in Chatham's fine shops, not to mention **Cy Guething's** purchase of a colorful madras jacket; the right-up-to-high-standards food and service at Chatham Bars Inn, that we have learned to expect; the futility of counting how many lobsters certain people had at the shiver-aroo Northeasterswept clambake on the water front; only one big fireworks bang during the banquet; **Sibyl Fletcher** and **Peb Stone** trying to do a 1965 watusi—no 1916 tunes, but they tried; **Izzy Richmond** in tennis doubles, shining like a little **Bill Johnson**; **Bill** and **Helen Leach** with that fine something they always add at reunions; the far-out shower-bath fixtures that took a B.S. or an S.B. in M.E. to figure out—who was it that flunked that one; the not-so-fleckless dashing here and there on Cape Cod by the lively wives; the **Joe Barkers**, after a struggle, getting the cartoned M.I.T. chair tied atop their diminutive English car, finding the bright red lipstick lettering on the carton "Just Married, M.I.T. Class of 1916"; **Jim Evans** making sure everyone was happy; and the smooth control of all delightful bits of reunion, e.g., vintage of dinner wines, by our genial ski-loving president!

Perhaps the thrill of the decade was the return from Chatham to Logan Airport on Alumni Day morning when your Secretary acted as copilot of **Ralph's** twin-engine Beechcraft, with pilot **George Blanchard** and passengers **Cy** and **Gyps Guething**, **Ralph** and **Sibyl Fletcher**, and **Peb Stone**. In case any one wants to know, acting as copilot really consists in just sitting belted in the copilot's seat, watching all the clouds go by, and listening to the mysterious chatter between the pilot and some air-tow-

er. But we were apparently not the only '16 copilot for the weekend, for **Jim Evans** had the same thrill in the same plane from Teterboro airport to Chatham on Friday evening.

And we have rafts of information due to the efforts of **Jim Evans**, his work and correspondence relative to the three M.I.T. chairs presented at the Reunion to the Three Busy Bees—**Barker**, **Barrett**, and **Brophy**. **Will Wyld** wrote that he will concentrate on the 50th reunion, and will hope to attend one of the fall lunches in New York (Chemists' Club, 52 East 41 St., Thursday following the first Monday of each Month; 12 Noon). Said he was present at the last luncheon in New York that **Bob Wilson** attended in '64 and "his is a great loss to the Class and the Institute." . . . **Lee Jones** of Elma, N.Y., explained his absence at the reunion thus: "Had to go South for a few weeks to help my good wife's arthritis and my galloping rheumatism—that used up most of the year's travel budget." He mentioned the tough time **Ted Jewett's** wife had been having in and out of hospitals in Buffalo. . . . And **Earl Townsend** was glad to take part in the chairs for "the 'B' boys who have done so much for the Class of 1916" and expressed good hope for the 50th. . . . Writing to **Jim** on May 10, **Emory Kemp** said: "The weather here has been perfectly grand since the first of the year. We have had clear sunshine since the 20th of March and only five showers in April and a total rainfall of only 1.10 inches since then. Daily temperatures in the 80's with the last six days of 90-92 and nightly readings averaging 60 to 63 degrees; and lovely mild breezes every day. Our Alumni Club of S. West Florida had a nice picnic Sunday before last down in Englewood at **Bill Grunwell's** (28) lovely estate between the Gulf of Mexico and Lemon Bay. A turn-out of over 30 members and wives." . . . **Burky Burkhardt** writes that his wife died three years ago, and he retired two years ago—was an engineer with the Millers Falls Company for 20 years. Says: "I'm footloose and free and am hunting and fishing and photographing all the time. By the way, every year while you are having the Class reunion I'm up in the wilds of Maine. It's still the old America. I have licenses in four states and use them too. Regards to all." . . . And speaking of Maine, **Duke Wellington** writes from Yarmouth: "Have no startling news to write about other than that we, like the birds, migrate to Maine in summer and Florida in winter with a stopover in White Plains on the way. Had some wonderful times with **Helen** and **Stew Rowlett** this past winter. I am no critic and know nothing about the fine points of painting but for my money the portraits that **Stew** paints take my fancy and I think they are very, very good!" . . . Writing **Jim** in July, **Paul Duff** said: "Frances and I will surely be at the 50th. We like the '16 gatherings more than any others. Six weeks ago I had a slight 'coronary.' I'm fine again and expect to be just as active as ever for a long time." . . . **Arvin Page** was happy to report an appreciable improvement with his arthritis. Says:

"So far I have not been able to hit a golf ball more than three or four times a day, and then it only travels about as far as I can spit. However, I do walk around five or seven holes with some of my old buddies, something I could not do six months ago." . . . **Dina Coleman:** "My varied retirement activities have gotten me pinned down so tight that I just will not be able to make the reunion this year. It is too darn bad but that's what happens when you take on the responsibilities for other people's affairs."

John Fairfield from Troy, N.Y., where he used to be head of the Department of Mechanical Engineering of Rensselaer, writes: "No news here. Now retired (age 72 is the cutoff here) so gardening and Greek. . . . Wife planning trip to East Africa (big game by camera) but I'm not going; September/December."

We have a handsome gold-embossed program of the inauguration of Samuel Brookner Gould as President of the State University of New York on May 13 in Philharmonic Hall, Lincoln Center for the Performing Arts, New York. Inside the program is a list of notables present—representing M.I.T., 1861, is our own **Thomas D'Arcy Brophy**, Trustee.

Rutgers University's May, 1965, Newsletter had this item of interest: "Honorary Doctor of Science degree will go to **Gordon Maskew Fair**, Harvard University professor of sanitary engineering and former dean of Harvard Faculty of Engineering."

Vertrees Young reports that the 1966 plans for his Trinity Reunion have been stepped forward a week, so that he and Sylvia will be able next year to take part in our 50th Reunion. . . . In the July 13 Christian Science Monitor account of the disturbances in Bogalusa, La., we see Vertrees' name mentioned: "One of Bogalusa's most prominent and outspoken 'moderates' is Vertrees Young, a retired officer and director of the Crown Zellerbach Corporation, the city's principal industry. . . . Mr. Young was instrumental in having Bogalusa's businessmen make a public statement in the local newspaper supporting the mayor in his moves to maintain order."

A card from Cristobal, Canal Zone, from the **Joel Connollys** in early August told of just having gone 2000 miles east of Tucson to reach the Pacific Ocean (see your atlas)—they were on their way to the Orient from Beaumont, Texas, by freighter.

In a Trinity Church bulletin, we have something about what **Joe Barker** was doing last year in Europe, and with it a good picture of him for posting on the reunion bulletin board. Here's how some of it reads: "Dr. Joseph W. Barker, Church warden of Trinity Church and in professional life an internationally known engineer, delighted the Tuesday Evening Hour on March 30 with a vivid talk on 'Contemporary Church Architecture in Europe,' illustrated with excellent slides in color for which Mrs. Barker was given credit. Father Platt, who is chaplain of the Tuesday Evening Hour, handled the projector. The Rector opened and closed the evening with a brief prayer. Canon and Mrs. Huess and the Bark-

ers journeyed together for part of their European itinerary, after which the Barkers made an additional trip to Scandinavia. . . . The Barkers reached England before their continental tour, in time to make some charming pictures in the Church of St. Mary-le-Bow in Cheapside where Dr. Huess was the preacher at the re-consecration of Trinity's 'sister church' on June 11, 1964."

On August 10th, the oldest newspaper in the U.S. (we understand), the *Hartford Courant* (200 years old), featured not one but two of our 1916 West Hartfordians—two who over a half century ago sat together in the same classes at the Tech on Boylston Street. And the two features appear on two different pages, but both in the sports section. On page 17, the baseball page, we read about our **George Petit**, the man who puts statistical trends to work; Bill Lee, the sports editor is saying: "George H. Petit, the retired Travelers statistical expert, begs to differ" (about a conclusion regarding Baltimore's fine pitching). And quoting the column which has "Mr. Petit" in every other paragraph, we have such commentaries as this: "But Mr. Petit continues to find fault with my August 4 opus. I must have been statistically off base on that occasion. 'May I also disagree with your fine column,' he writes, 'that Detroit has the pitching. . . .'" etc. "Well, maybe. But darned if I don't feel like throwing statistics out the window every once in a while." George regularly sends heavy computation sheets, with interpretations, to General Manager Ed Short of the White Sox! The second item in the *Courant* gives us a smiling picture of **Frank Ross** as it talks about men who were "to represent the Connecticut State Golf Association in mid-August in the Annual Tri-State matches against Massachusetts and Rhode Island." The article mentions two "Seniors," Frank D. Ross and Floyd Jones, and notes: "Ross, a veteran of four decades on the team, is a former New England and State amateur and U.S. Seniors champion and winner of the Wampanoag title 16 times." How about that!!! One thing we can say from observations at earlier reunions—it is like music and poetry in motion to see him play!!

We appreciated receiving a letter from E. H. Russell, Jr., Treasurer of the Class of '04 in Needham, with a copy of a thoughtful letter to him from Frank H. Davis, '04, and a clipping from the *Detroit Free Press* of April 20, giving us our latest picture of **Tred Hine**. The picture with his father and brother carries the caption: "Flanked by his two sons, William E. Hine basks in the tribute paid him yesterday in honor of his approaching 102nd birthday. The sons are Robert (left), who is 62, and Tredick (right), 72." The news item, under the heading: "Restless Senior Citizen Sees His Life Slowing Down at 102" gives a glowing account of Tred's father's life history. Of special interest to us is the message contained in Mr. Davis' letter, and his kindness in sending it along: "The enclosed clipping was of interest to me because this Tredick Hine, Class of 1916 M.I.T., was a great help to me when

I was active in the local M.I.T. Association. I have not found it convenient to make the local meetings lately so have not seen T. R. Hine. He is a graduate of M.I.T. in Architecture and was the architect for the Chrysler Motor Corporation up until his retirement. Thought that the Tech Review might be interested in what happens to Tech men. At least the Class of 1916 might be." Our many thanks to Messrs. Davis and Russell, '04!

Ed Hanford, writing from his daughter's home in Kailua, certainly makes Hawaii sound good. He tells of trade winds that blow continually from the northeast at about 15-20 mph; occasional rains but mostly at night; 12-year-old girls launching 15-foot boats into the surf and sailing all over; mangoes, and pineapples whose 1½-inch squares "simply melt in your mouth;" the Ala Moana Shopping Center in Honolulu with 80 air-conditioned stores on two levels "surrounded by tropical gardens, fanciful fountains, and striking architecture, with products from all over the world." And as he goes on, he suddenly stops with: "I have to close now—a neighbor just brought in a luscious looking open mango pie!" For more details, write Ed at 15 Roselawn, Hammond, Ind. . . . **Francis Stern** continues to make us study geography. We understood him well so long as he talked about Lake Windermere, Loch Lomond, Loch Katrine, the Trossachs, and Edinburgh. But when he spoke of places in North Ireland, such as Ballynahinch, and in Southern Ireland, we were back on page 34 of Hammond's World Atlas. He says they hit a "little hotel called the Ballylickey House that was charming—a completely French staff including a fabulous chef and a week more of it would have ruined my waist line. . . . We motored down the peninsula along Bantry Bay and on our return came over what is known as Healy Pass. A more rugged and more beautiful bit of country you can't imagine. . . . There is a brand new hotel in Killarney, opened just ten weeks ago, and should you go back to that country, don't miss it. Built by Germans, it is spotless and modern in every respect." On where to fish over there—ask Francis!

We are sorry to report the death of **Seth Cutler** of Hillburn, N.Y. on June 24, and of **Sidney Dodd** of West Caldwell, N.J., on July 31. A newspaper account notes that Sidney Dodd was a descendant of the family that settled in Doddtown, a section of Orange, in the mid-17th century. He had been "the research director for Oakite Products, Inc., New York, for 25 years. He retired five years ago. He was the owner of several chemical patents and marked his 50th anniversary as a member of the American Chemical Society last year. He was an avid collector of old books, principally fiction classics, histories, and biographies. He was a member of the First Presbyterian Church, Caldwell. He leaves his wife, Mrs. Abbie Garland Dodd; a son, Dr. Samuel G. Dodd of Mansfield, Conn.; three sisters, Miss Mabel Dodd of Bloomfield, Mrs. Henry deMeana of East Orange, and Mrs. Norman Phair of Manassquan, and three grandchildren."

This concludes our first Fall coverage as we look forward to our 50th, the BIG one, next June, to be held in Cambridge and at the Oyster Harbors Club in Osterville on Cape Cod. More about the reunion in the coming issues. So, once again, to help keep the little old column full and interesting, write a little but write often to any one of your class officers. **Harold F. Dodge**, Secretary, 96 Briarcliff Rd., Mountain Lakes, N.J. 07046; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass. 01863; **Joseph W. Barker**, Vice President, 45 Beechmont Dr., New Rochelle, N.Y. 10804; **Hovey T. Freeman**, Treasurer, 45 Hazard Ave., Providence, R.I. 02906; **T. D. (Steve) Brophy**, 50th Reunion Chairman, 470 Park Avenue, New York, N.Y. 10022.

'17

Welcome to the 1965-66 season for class notes, with only two more alumni days to go before we celebrate our gala 50th reunion. Everyone will want to plan for this big event. How will our class measure up in presenting the Institute (in Reunion Gift Chairman Ray Stevens' words) "a reunion gift commensurate with Seventeen's part in M.I.T.'s history, contributions and progress"? And, we might add, in the personal benefits that have accrued by reason of being a part of the M.I.T. family for 50 years. Think it over.

Alumni Day 1965, in the words of one classmate, "was cold and rainy—we almost froze during lunch." The following 1917'ers huddled together to keep warm: Ken and Mrs. Bell, Ray and Mrs. Brooks, Stan and Mrs. Dunning, Heine Gartner, Stuart Gurney, Bill and Mrs. Hunter, Stan Lane, Al and Mrs. Lunna, Ray and Mrs. Stevens, Tubby Strout and Ed Tuttle. Allison Williams and wife and Horace Ford and wife joined the group for dinner.

Walt Whitman opens this issue of the notes with news of his recent activities: "Since retiring from the State Department in the fall of 1962, we've been happily nomadic and irresponsible. The following February we took off for the Mediterranean via Madeira, with Greece and the Aegean Islands as our prime objective. It was wonderful: little money but lots of time. Ride the local bus to God-knows-where, eat the native food and drink the Ouzo and residue wine. Only one day of 'indisposition' in four and one-half months. It can be cheaper than staying at home, when you don't have to join a hurry-up tour to see everything in a limited time and then get back to the job. Two weeks on the island of Rhodes around Easter time was perhaps the high point. . . . We have practically decided on Scottsdale, Ariz., as our official residence for Uncle Sam's income tax people because (1) the Valley of the Sun is ideal in wintertime and (2) our daughter and family live there. Those three teen-age grandchildren keep us up-to-date on youth and its doings. We come back east in the summers, this year to our old hometown of Concord, Mass.

Right now (July) we're in a little cottage on the bank of the Concord River, about 200 yards below the 'Rude Bridge that Arched the Flood.' I've even ventured to paddle a canoe again. . . . My professional activities since retirement have been short missions abroad. A year ago last spring I headed a group for the National Academy to initiate co-operation with the Chinese Academy of Sciences in Taiwan. This spring it was a three-week mission to India for M.I.T. and the Ford Foundation, to help in planning a new Institute of Technology and Science, patterned after M.I.T. It is uniquely non-governmental in India, with rupees provided by a leading industrial family of India and dollars coming from the Ford Foundation through M.I.T. It is hoped that the example of a truly private institution, which can control its own program and policies, will help to lift higher education in India out of the bureaucratic morass which so hampers the education there. . . . Since India is half-way around the world from Arizona, we of course girdled the globe, visiting our younger son and his wife in Berlin on the way and coming back through Bangkok, Hong Kong and Kyoto. Bangkok rated No. 1 in our book and indeed it seems to be the favorite with all our friends who have been there."

Bill Dennen writes the following from his farm in Dalton, Pa. "We spent our winter away from home as usual, first going to the Virgin Islands to spend some weeks with my brother and then driving around Florida and along the Gulf to Texas, then on to Mexico for the balance of the winter; we were with the Cornishes as usual for the Fiesta. We spent some time in the Big Bend National Park in Texas on the way down and enjoyed it so much that we went back there again on the way north. Of course, we visited a lot of friends along the way and stopped to see our classmate **L. E. Schoonmaker** in Gainesville, Fla. . . . After arriving home in mid April, I was feeling so well that I decided to have my annual physical examination right away. Much to my disgust, the examination turned up a growth in the lower intestine requiring an abdominal operation which kept me in the hospital nearly five weeks. I am now (June) home and beginning to feel a bit like myself but not up to making the trip to Cambridge for the Alumni Day." The following is from **Earl C. Lewis**, Danvers, Mass. "For a long while, I have attempted to submit a resume of my recent experiences. In June 1963, after five deferments, and after passing my 70th birthday, I was retired as senior industrial engineer after serving 18½ years with Raytheon Company. For a year and a half I suffered the pangs of inactive retirement, so in March of this year (1965) I joined a consulting engineering company and have been enjoying full time employment at RCA in Burlington, Mass. . . . During the school terms I teach advanced mathematics and blueprint reading for the building trades at the Evening Vocational High School in Lynn, Mass. . . . To enjoy a fuller life, I was married again on April 17th to Katherine Hanson, an active Christian

Science practitioner. Because of marriage intentions I cancelled a two-month tour of Europe this summer, but my wife and I will continue our honeymoon in California and the West Coast during September. . . . I am having an excellent opportunity to prove that retirement need not become inactive stagnation, but rather a 'change of environment with constructive activity.' Since my 72nd birthday last March, I have been busy and intend to continue a full life of business and travel."

The class notes for February told about the career of **Stanley Chisholm** at his North Island Materials Laboratory on the Pacific Coast. As a follow-up to Stanley's long service, he received on June 30th an honorary award. The notice reads as follows: "Stanley L. Chisholm, pioneer Aeronautical Materials Engineer, was honored at a special award ceremony in the laboratory he established 29 years ago. Captain R. M. Kercheval, Commanding Officer, on behalf of the Chief of the Bureau of Naval Weapons, presented to Chisholm the Navy Superior Civilian Award, the Navy's second highest honorary award for which civilians are eligible. The award was based upon 29 years distinguished Navy service as a scientist, teacher, and manager. The citation, signed by **RADM Allen M. Shinn**, states: 'This certificate of award is presented to Stanley L. Chisholm in recognition and appreciation of superior service which has been of exceptional value and great benefit to the Navy.' Corrosion control of Navy Aircraft is considered by many to be the most significant area of contribution made by Stan Chisholm. He plans to continue his corrosion project after retirement on June 30th as part-time consultant to the Laboratory under a Personal Service Contract. Why did you choose manufacturing and development for your life work when you were trained to be a research chemist, Chisholm was asked. He toyed with a rock candy filled paperweight a moment then looked over his glasses through tufted eyebrows as he replied, 'I like to see the effects of projects which I've engineered. Abstract science alone could not give this degree of satisfaction.'"

The report of President Stratton for 1964 said: "The School (Alfred P. Sloan School of Management) was established in 1952 under a grant from the Sloan Foundation, and the first graduate of the now fifty year old Course XV—originally called Engineering Administration—came back to us as its Dean. Through the wisdom of **Edward P. Brooks**, through his wide experience of the industrial world, and through his tireless efforts and devotions, we were able to give reality and substance to Mr. Sloan's great vision of a school of management."

John M. DeBell returned recently (early summer) from a trip to London where he graced the head table at the annual dinner of the Horners Guild. It seems that the worshipful society of horners was formed back in the dim past to protect the interests, and provide social requirements, of men professionally concerned with the conversion of cattle horns to powder horns and other com-

mercial purposes. By gradual stages the society evolved as the use of horns and horn-like material changed and developed until it absorbed the embryonic plastics activity. Hence, the presence at its sacred gathering of the founder of DeBell and Richardson, plastics developers, consultants and authorities of Longmeadow, Mass. John rented his white tie outfit, including white waistcoat and spare ready-tied white tie—should his skill in bow tying have lapsed—and joined the Lord Mayor of London and other worthies at the Mansion House for the speech-making, gourmet dining, wine-bibbing occasion. The guest speaker was a fluent Canon of the Episcopal Church. He told of informing a new acquaintance that he had not done much traveling abroad. "After all," he said, "I am only a poor preacher." "Yes," said his new friend, "I've heard you." . . . Three years ago John sold his home in Longmeadow, tore down his summer cottage on Lake Crescent, and built a DeBell-designed retirement home in its place. It included emergency water, heat and power supply, wine cellar, bomb shelter, vegetable storage combinations, area for visiting children and grandchildren, home office, and all. His company is expanding into new quarters, but he is retaining his old office as his fade-away. He now travels much less, but a few special occasions, such as the annual passing of the great loving cup among the Horners, require the presence of the "Old Man."

Following are a few random notes about 1917'ers: **David E. Waite** is still substituting as a high school teacher of science and mathematics at the regional school near his home in Bradford, R.I. . . . **Loosh Hill** returned to the hospital in June for a little post operative repair work, but returned home soon and is feeling fine again. . . . **Ray Blanchard** is progressing rapidly with both speech and physical therapy after his hospital experience. . . . **Ed Tuttle** has had a nurse attendant for two years to assist with coughing trouble, but made it alone to the June Alumni Day. . . . **Enos Curtin** was laid up for a couple of weeks with a flu infection. He contributes the following: "A priest went to lunch at a fashionable 50th street N.Y. restaurant. While he was looking at the menu a gorgeous babe walked by which took his mind off his food. His friends said, 'Father, I am surprised at you,' to which the Father replied, 'Even though I am on a diet there is no harm in looking at the menu'."

From this point on the assistant secretary takes over for at least the rest of this year, giving our faithful secretary, **Win McNeill**, who has been editing the notes since 1957, a bit of a respite to aid his fuller recovery. It seems that instead of attending the Alumni Day festivities, Win went to the Hospital. As of the day after Labor Day, he reports that he is doing well, and although he advises he will not be attending the Alumni Conference, he is planning on being present for the 48th Reunion. Apparently he combined too much golf and lawn mowing, but now he is back driving his car,

although not his golf cart. I might digress here to relate an experience, that if not of general interest, may give Win something to think about—with several acres of lawn to mow, I acquired a 6 HP bucket seat, spring suspended rotary mower with starter. It was immediately given the name of the "White Charger", and my most gracious lady neighbor took over operations. Now her grandchildren line the fence shouting, Go Granny Go!

Al Moody has left Denver for Winter Park, Fla., to do some work for the Florida Gas Transmission Company, which will probably take at least a year. . . . Our very energetic **Will (Bill) Neuberger** advises, as of May, "While I was at the Institute my father was selling many carloads of cream of tartar in New England, where mostly every housewife made her own baking powder with cream of tartar and bicarbonate of soda. My father's brothers in Germany were the largest producers in the world. Cream of tartar was made in the U.S.A. by three manufacturers until '58. We started production November 11, 1964, and are now the only producers in the U.S.A." Good luck to you, Bill, in your latest venture. . . . **Dr. Robert S. Mulliken**, whose work for more than 35 years has dominated the development of the quantum theory of molecules, received the Willard Gibbs medal, honoring his pioneer efforts, from the Furniture Club, Lakeshore Drive, Chicago. His meticulous research bridges the world of the atom and the universe of the molecule and is marked by more than 200 publications, three quarters of them bearing his name alone. . . . **Raymond Stevens** of 100 Memorial Dr., widely known business leader, has been elected to the Board of Corporation of the Morgan Memorial, Inc., of Boston. . . . **Paul J. Bertelsen**, course IX-B passed away December 10, 1963. Paul took a special course in Naval Architecture and Marine Engineering. In addition to the comments listed on page 21 of our 30th year report, the M.I.T. Register lists Paul as Engineering Advisor, Small Business Administration, Washington, D.C. . . . **William H. Sandlas** of Baltimore, Md., course I SM degree, died February 14, 1965. He was chief estimator for the Consol Engineering Company of Baltimore. . . . **George Henderson** writes from Arlington, Va., "I have just received a letter from Mrs. **Lowell Cady** informing me of the death of Lowell on April 10, 1965. Cady and I were pitchers on the class baseball team, in the Navy together for a while, and so kept in touch through the years. Lowell was still active with a civil and sanitary engineering firm in Atlanta, Ga., when a severe heart attack caused his demise. . . . **Edison F. Sawyer**, 75, of 10 Hope Lane, Woburn, Mass., died July 2, 1965. He was a retired head office engineer, employed by the State Department of Public Works. Born in Boston, he was graduated from Boston English High School, M.I.T., and Northeastern University Law School. . . . **Steven S. Mason**, Southampton, Mass., died July 16, 1965. For 25 years he was employed as a rate man-

ager with the Washington Gaslight Company, Washington, D.C. . . . **Charles E. Ross** of 6 Wadman Circle, Lexington, Mass., passed on in the latter part of August. He was a former B.F. Goodrich Company executive, retiring in 1960.

To somewhat counteract this list of death notices, let me quote from a letter dated May 18th, 1965. "This is one for the books—**Alfred Pierce** was put in the deceased file in 1919 on advice of the Class Secretary, who had it from the Attleboro Town Hall—a couple of months ago we had a letter from him from California, stating that he wished to make a contribution to the Scholarship Fund." Alfred writes from 100 Atlantic Ave., Long Beach 2, Calif., "Many times during the past 48 years, since graduating from M.I.T., have I been grateful for the prestige such association has afforded me. At the close of World War I, I migrated to California, which has been my center of operations ever since. Except for a rough time during the Great Depression, I have been busy contributing to the development of this great State through the practice of general civil engineering on such progress as air fields, water and sewerage works, streets and highways, military bases, schools and residential developments, work has taken me to foreign fields including Mexico and a hitch with the Army of Occupation in Japan. Now that my wife Irene, who is an architect, and I have retired, we have travelled extensively. We recently returned from a five-weeks cruise through the South Pacific, as far as Australia. If I were to do it all over again, I would say only 'Let's do more of it, and keep trying to do it better.' It has been a good life." The Class hopes to see you at the 50th Reunion, if not the 48th or 49th.

A letter dated August 25, 1965, from the National Society for the Prevention of Blindness, Inc., states that the wife of its President, Mrs. **Enos Curtin**, died suddenly on August 23. Enos' address is Center Island, Oyster Bay, N.Y., or 137 East 66th St., Apt. 6-C.

In the first issue of the notes for the year 1965-1966 we must mention our very active Class President, and quote from the Cambridge Chronicle of May 27th; "**John A. Lunn**, 37 Larch Road, will be one of five alumni of Colorado State University to receive special honors for outstanding service and professional achievement, at its Commencement exercises June 4th. Mr. Lunn was first graduated from C.S.U. with a B.S. in Civil Engineering in 1915. He received a B.S. degree in Mechanical Engineering from M.I.T. and Harvard University in 1917 and then M.S. from C.S.U. in 1921. He was awarded an Honorary Doctor of Science degree from C.S.U. in 1956. Dr. Lunn's business affiliations the past 45 years have included the National Refrigerator Company, Winchester Repeating Arms, Dewey & Almy Company, and the Kendall Company. At present he is a Director in some sixteen Corporations and has also served as Director of several Civic organizations. He is a member of the Cambridge Redevelopment Authority. His interests in the field of Education have also been extensive at C.S.U. and

M.I.T. He has provided a Scholarship for a Freshman engineering student at C.S.U. since 1956."

Surprises are most interesting at the New York monthly '17 luncheons, and at the June luncheon that surprise was the appearance of **Dean Parker** for the first time. At that time Dean advised that he is feeling as well as could be expected for a man of his age, but that he gets tired pretty fast, and that his leg swells if he walks much. You may remember that he experienced a blood clot while enroute to the 5th Annual Alumni Conference September 1964. Dean operates a marina at Bayshore, Long Island, during the summer. Last winter he and Mrs. Parker spent two months in Englewood, Fla. They have bought a lot near the Gulf there and hope to build a retirement home as soon as he can unload some of his properties in Michigan and Long Island. After that, he hopes to see some of the world. Dean advises that his book "Principles of Surface Coating Technology," came out last February, and quoting just one sentence from the Oil, Paint & Drug Reporter of March 22, "This is the best all around book on paint technology to be published in the last ten years."

The New York monthly luncheons recessed during July and August, but will continue, as usual, on the first Thursday of the first full week of each month at the Chemists' Club, 52 East 41st Street, New York City. **W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford, Conn. 06107; **C. D. Proctor**, Assistant Secretary, P.O. Box 336, Lincoln Park, N.J. 07035

'18

Those among the faithful who are familiar with Ecclesiastes will recall that old King Solomon thought there was a time for almost everything. He put together an impressive list, but it lacked an important item for our era—a time for college reunions and old friendships. There is a stirring and authentic magic to this because, by some alchemy, even classmates who did not know each other well in college are reminiscing in five minutes about memories that bind them together over even a half century or more. Do you not remember how Major Cole kept telling us in military science that the M.I.T. experience would give us a lifelong bond? Probably we didn't believe it then. Those of us who attend reunions know its truth, partly because of college associations, probably equally because we are birds of a feather. In it are both heart and education. From June 11th to 13th our class had an interim reunion between the forty-fifth and the fiftieth because we have such a good time together, dropping away the years in a new zest for life. For the second time we gathered at the Wianco Club in Osterville. Present were: Malcolm Baber, Eli and Dolly Berman, Violet and Carl Blanchard, Sam and Narcissa Chamberlain, Johnny Clarkson, Sax and Louise Fletcher, Al and Stella Grossman, Pete and Frances Harrall, Julian and

Elizabeth Howe, Harry and Sara Katz, Jack and Ida Mae Kennard, John and Eleanor Kilduff, Nat Krass, Herb and Mildred Lerner, Len and Gladys Levine, Alexander and Carolyn Magoun, Hall and Evelyn Nichols, Gretchen Palmer, Joe and Elsie Pearson, John and Betty Poteat, Ed and Dorothy Rossman, Max and Selma Seltzer, Jim and Eva Sullivan, Charlie and Martha Tavener, Carlton and Louise Tucker, Albert and Helen Walker, Chink and Mildred Watt. Tuned to a joyful wavelength, **Carl Blanchard** brought his Executive Hunt Club Orchestra from New Haven, composed of piano, clarinet, trumpet, bass viol, and drums, with Carl at the end of the trombone. Each musician was a bona fide executive: Bausch and Lomb, a bank, Conn. Coke Company, Sikorsky Aircraft, New England Telephone, and fuel oil. Some had once been professionals with a famous dance band. Carl makes all the musical arrangements, and they are good! Freedom from care, music, straw hats, bandanas, corn cob pipes, joy in being alive and whistles inspired one lady, referring to **John Poteat**, to say, "That big cowboy came along, swept me off my feet and right onto my pony." Seventy-year-olds danced as they had not done since our last reunion. One man, who usually walks with a cane, did a fandango in allegretto gracioso almost as vigorous as **Pete Harrall's** performance. It was **Chink Watt's** forty-fifth wedding anniversary. Melting with affection, the whole group toasted him and Mildred. Of course we danced and we also sang, reviving some old songs we used to sing at lunch time in the old building on Trinity Place.

There was golf on Saturday with four men tied at seventy-eight net. **Carl Blanchard** won the first prize, followed by **John Kilduff** and **Eli Berman**. For the first time in class history, **Chink Watt** was not among the winners. The distaff side was led by Dolly Berman, with Mildred Watt as runner up. Inevitably, Gretchen going into orbit from an exploding box of fireworks on the beach at Weekapaug in 1928 was recounted. **Hall Nichols** lives in Falmouth near the man who used to be the tennis professional at Forest Hills. Hall has been playing with him and has so improved that he now wins once in a while despite the fact his professional opponent is 79 years old. **John Clarkson** makes his journey toward the far horizon more gracious by running an old folks home in Concord, Mass. **Leonard Levine** said, "I hope you live to be a hundred and twenty and I'm there to congratulate you." **Pete Harrall** said he hasn't moved in 20 years. **Nat Krass** had a fantastic story of a son, engaged to an airline hostess who was based on London. At the last minute they decided to be married in San Francisco instead, so Nat kept right on going east until, almost around the world, he reached San Francisco for the wedding.

Even with benefit of calculus, some of the brethren had to be straightened out on their math because they didn't realize that the minute you have passed your sixty-ninth birthday you are in the seventies, one year of which has gone by on the seventieth birthday. There were good talks concerning the advances in science

and engineering since we were graduated. With candor, most of us expressed some doubts of our ability even to be admitted now, say nothing of being graduated. We speculated as to who had the most grandchildren. Someone thought **Alan Howard** had thirty-two. **Tom Kelly** is another likely candidate. Final speculation settled on **Fred Washburn**, whose eight children must have produced enough grandchildren so Fred has to have a card catalogue to remember them all. In addition to such jollity, the class gave **John Kilduff** a small gift in recognition of his efforts in our behalf. **Max Seltzer** deserved recognition, too, for the many telephone calls he made to lure the brethren together. It is a shame that many feel it has been so long since old friendships were knit up they would feel strangers at a reunion. All the delicate joys of the most friendly reception, and the kind of mutual bonds that Major Cole assured us would be forged, prove a delightful reward for miles of travel. We all came away on Sunday singing an aria of faith in ourselves and in each other. We even agreed that a little course called "precision of measurements" had meant more in our lives than almost anything else we studied at M.I.T.

We expect even to get **Jim Flint** on our fiftieth, and he's never been at a single reunion yet. In his letter of June 1st he says: "I must say how pleased I was to have your note. Your philosophy of life has always seemed to me to be so practical. You could reduce it to every-day experiences and apply it to the mundane act of living each day. I have always envied your ability to do this, and apparently it is done with such ease! Now my philosophy of living is hidden in some nebulous ivory tower, and any connection between that and the act of every day living is purely coincidental. It is the sort of thing that would only be discussed in a parlor on a Sunday afternoon and only then in the most abstract and objective manner. Your observation about my attendance at class reunions is absolutely correct. I will also say I am sincerely sorry that I can't be there this time. My failure to appear has nothing to do with my getting 'mellow.' I can only remind you that people our age are often so 'mellow' that they border on something else. I suppose there has been a reason over these eons of time since 1918 that I have never been to a class reunion. However, it is equally amazing that you have never missed one. It would certainly be interesting and informative if someone could look inside our heads and tell us why. I hope that you are quite well and feeling fine, although your letter casts a shadow. There are two parts to being as old as we are. One is we are coming apart at the seams and generally headed for the round house. The other part is we still hold our heads up, keep our eyes open, and try to play the part of the elder statesman. The former you can't do much about, but the latter is all ours to control." Ah yes, Jim, to everything there is a season, as Solomon said. But let me remind you what a wonderful thing it is to grow old. The only alternative is the tragedy of dying young. . . . **Tom Kelly** says, "I still don't think of myself as a senior citizen."

I didn't think you went by the years, but only by the spirit. From the list of your activities, I would say you are bearing up very well, and that the pure air in the hills of New Hampshire is agreeing with you." . . . **Theodore Wright** wrote, "Sorry I cannot make it this year, having taken on extra duties in connection with my presidency of Associated Universities, Inc. Please tell the gang that I wish so much it was possible for me to attend." . . . From East Greenwich, R. I., **Sidney Blaisdell** said, "Our plans call for a busy two weeks the first part of June, spending one week in Canada calling on our customers, and the second, in meeting our Australian agent and his wife who is returning the visit we made him last November. Under these conditions I do not expect to be able to attend the reunion but do hope to get to Cambridge for the Alumni Day luncheon and look forward to seeing you then." . . . **Fred Philbrick**, who can usually be counted on, was unable to come because of complications involving both finance and a friend. He reports that "I have the class funds deposited in the Coral Gables Federal Savings & Loan Assoc., where they have been drawing four and a quarter per cent. The balance was \$708.24 as of 12/31/64; and there will now be some additional interest. We started with \$744.36 in May, 1957, and have withdrawn a total of \$271.28, so that accumulated interest has made up for most of the withdrawals. Please give my best wishes to all, and we will look forward to the 50th in 1968." To many of us the most touching thing that happened was the telegram of good wishes received from **Pete Sanger's** widow, Margaret. Our 1963 reunion was a honey and Pete, knowing that he would never be able to attend another, did a marvelous job of running it. The class fund will miss his efforts too, as we were all aware in our moment of silent reflection in his honor. —**F. Alexander Magoun**, Secretary, Jaffrey, N.H.

'21

Greetings and a most hearty welcome to our forty-fifth year of these monthly meetings around the friendly fireside of the Class of '21. This year marks the forty-fifth anniversary of that pleasant June day in 1921 when we sighed in relief on receipt of the sheepskin that marked the end of our stay at the Institute—and went out to conquer the world. It hasn't been easy, but the solid friendships we made in those war and post-war troubled days have served us well throughout the years. We can look forward with a great deal of satisfaction to the quinquennial opportunity to renew these long-time associations at our forty-fifth reunion next June 9-12, when we meet at the Griswold Hotel and Country Club in Groton, Conn. Everyone, including the hardy group that meets annually, will then proceed to Cambridge for the June 13 marvels of Alumni Day on campus. As we reminisce on this lovely Sep-

tember morning, we feel obligated to express to you, dear classmate, the sincere thanks of Class President **Ray St. Laurent**, those of your Secretary, **Cac Clarke**, and of your representative on the Alumni Council, **Chick Kurth**, for your kindness and confidence in keeping us in office these many years since graduation. It has been a labor of love and it has had its difficulties and disappointments. However, your active and continued interest in Technology and the Class of '21, your welcome correspondence, attendance at our meetings and generous support of Institute projects have more than repaid all the effort that has gone into a continuous endeavor to hold the group together, despite the confusion of those World War I years and our subsequent geographic separation. Even if retirement has widened this physical gap, don't let it interfere with making the trip back with your wife to rejoin your many friends at Groton and Cambridge next June.

Alumni Day 1965 last June, on the theme of "The World We Live In," saw an ever-increasing attendance of the Class of '21. Our group comprised 57 people, made up of 32 members of the Class, their wives and guests. The kaleidoscopic picture of their participation in the day-long events defies description. The exhibit at the base of the new Green Building, housing the Center for Earth Sciences, the satellite demonstration, weather forecasting, tours to geology, geophysics, geochemistry, meteorology and oceanography centers on various upper floors and the panoramic view of M.I.T. and the new Boston from the roof of this 20-story building, highest structure in Cambridge, caught the serious attention of everybody. Startling documentary films of oceanography, weather and climate, volcanic eruptions and space venture were capped by the first showing of a special NASA color film of Major White's walk in space. Two dozen department headquarters held open house for alumni and faculty and there were numerous other exhibits, including Lincoln Laboratory research, creative photography, a centenary of teaching at M.I.T. and an art show. The noon luncheon in the Great Court was the day's high point, featuring awards and presentations and the always-amazing annual report on the state of the Institute by our revered Jay Stratton '23. An afternoon symposium covered interesting views of the future of our earth, the science of sea water, space beyond our atmosphere and modern meteorology. The usual social hour preceded a steak dinner, where our entire group happily convened around the festive board in Rockwell Cage. The popular and now almost traditional conclusion for the enjoyable day was a full-length concert by Arthur Fiedler and the Boston Pops in Kresge Auditorium.

Among those present were: Mich Bawden, George Chutter, Cac and Mrs. Clarke, Josh and Mrs. Crosby, Ed and Mrs. Delany, Chick and Mrs. Dubé, Ed and Mrs. Farrand, Norm and Mrs. Ferguson, Harry and Mrs. Goodman, Bob and Mrs. Haskel, Jack Healy, Irv Jakobson, Mel and Mrs. Jenney, Phil and Mrs. Johnson, Paul and Mrs. Johnston, Chick

and Mrs. Kurth and guests Susan Burke and David Wheatland, Ed and Mrs. MacDonald, Dick McKay, John and Mrs. Mattson, Bob and Mrs. Miller, Don and Mrs. Morse, Phil and Mrs. Nelles, Harry Rosenfield, Paul Rutherford, Steve and Mrs. Seamos, Bill Sherry, Saul and Mrs. Silverstein, Ted Steffian, Bill and Mrs. Wald, Al and Mrs. Wechsler, Dick and Mrs. Windisch, Dave and Mrs. Woodbury. Absent on a European trip and sincerely missed were Helen and Ray St. Laurent. We had to be content with this radio message from them aboard the westbound S.S. Queen Elizabeth, which was read to all in attendance: "Ocean greetings. See you next June—our forty-fifth—or sooner." A most pleasant surprise was the introduction of Mrs. Philip A. Nelles, Jr., the former Kay Carleton. Phil and Kay had been married the previous weekend and we all wished them well for a long and happy life together. Guests of Chick and Laurie Kurth were daughter Susan and her fiancé, David Alan Wheatland, son of Mr. and Mrs. David P. Wheatland of Topsfield, Mass. The wedding took place the following weekend. The senior David, who was associated with us in Course II, is the curator of historical scientific instruments at Harvard. **Chick Kurth** has retired as Vice-president of Boston Edison in charge of steam and electric operations and is continuing his engineering career with Jackson and Moreland in Boston.

Since his return from the trip abroad, Ray phoned us from "Saints' Haven," his summer home at Vinal Haven, Maine, that **Edouard N. Dubé** has agreed to team with **Ed Farrand** as our '21 Class Agents. We welcome Chick to the official family and ask that you give him your generous support. Chick and Maida visited Ray and Helen in Maine on the occasion of a trip to see their daughter's family in Falmouth Foreside, Maine. They report warm and thoughtful hospitality in a beautiful location. Their son-in-law, Paul McDonald, principal of the Weston, Mass., High School, has been named superintendent of the Southern Berkshire School District and he and Anne Louise have now moved to that area. We had a wonderful time when Chick and Maida later visited Maxine and your Secretary for several days at our home in Brielle, N. J. The family party assumed miniature reunion proportions with a visit from **Marnie Hawes**, also a native of Chicopee, Mass., who grew up with Chick there. An interesting Dubé anecdote concerned his business transactions with a John Barriger. It turned out to be a cousin of our **John W. Barriger**, who said he had never met his famous namesake.

That remarkable couple, **Helier and Graciela Rodríguez** came up with another magnificent tribute to the Class of '21 and to the St. Laurent's by driving some 500 miles over the Pyrenees from Madrid for a short visit with Ray and Helen in Carcassonne, France. We took to Alumni Day the letter, written to us by all four on the quaint stationery of the Hotel de la Cité, as a greeting to those assembled in Cambridge. Here are some excerpts: Ray says, "Graciela and

Helier met us here last night and what a reunion we had. Today we traveled together in this fantastic setting of ancient history and modern conveniences." From Helier: "We were delighted and thrilled to meet Helen and Ray. Our thoughts flew to you and to all our dear classmates, with regret that we shall not be able to be at Alumni Day to greet them. Let these lines take to you and the rest of the Class our heartiest greeting and best wishes." Graciela added a warm note to '21ers as did Helen, who had uncovered ancestors of her Corbett family who had been in that area before they went to Scotland and Canada. On their return to Madrid, Graciela and Helier wrote again of their trip. Helier says, in part: "We certainly enjoyed our little reunion in Carcassonne, where Ray had Room 21 and we had Room 210, so everything centered around '21. We took a guided tour of the chateau and the city walls and then drove into the narrow passages in the mountains towards the Pyrenees, enjoying a panorama of unsurpassed beauty. The tops and sides of the mountains were covered with snow, while down in the narrow valleys we could see the beautiful spring color schemes of bright green grass and a variety of color shades of blooming trees and bushes. I had made some contacts in the Dominican Republic and was expecting to go there on an exploratory trip when the news of the trouble reached here. I was hopeful I could be active again in connection with the sugar industry. Those tragic events in Santo Domingo, which have dissolved my immediate hopes for activity and usefulness, have, however, offered the opportunity for the White House to show a new spirit of courage and determination for the defense of freedom from communism, which has served to bring a glimpse of hope for all those people who are suffering, directly or indirectly, from the regimes of cruelty and tyranny in the world." Graciela added the hope that they could again attend '21 gatherings in the future.

Thomas W. Bartram writes from his home at 1084 Highland Drive, St. Albans, W. Va., that he retired in 1961 as head of Monsanto's chemical research laboratory at the Nitro, W. Va., plant after more than 37 years with the company. He is also a chemist emeritus of the American Chemical Society and has become an active member of the International Society of Japanese Philately. Tom has built a private practice as a patent searcher. . . . **Robert and Bertha Cook** made their usual trip north from Ft. Lauderdale, Fla., to their home at 326 East Lake Road, Canandaigua, N. Y. 14424. . . . **Roderick K. Eskew** gives his home address as "Roseburn," Box 205, Spring House, Pa. 19477. . . . **Julius Gordon** has a new Florida home address at 13851 N.E. Miami Court, Miami 33161. We assume this indicates retirement, Julius. Yes? . . . Emeritus Professor **Victor O. Homerberg** still resides in California but shows his new address as 1327 Plaza de Sonadores, Monteito, Santa Barbara 93101. . . . Another apparent retiree is **Donald F. Lyman**, who has moved from Rochester, N. Y., to 904

79th Street South, St. Petersburg, Fla. 33707. Right, Don? . . . The Rev. **Everett R. Harman** has given up his post as pastor of Christ the King Church in Cedar City, Idaho. Father Harman writes: "As of June 1, I retired from active parish work, due to ill health and my 70th year of age, and have gone to a monastery in California, fifteen miles from Palmdale, where I can complete my writing and research with fewer interruptions." His current address is in care of St. Andrews Priory, Valyermo, Calif.

A welcome letter with most complimentary remarks about our Class news came from **Richard W. Smith** of 8713 Jones Mill Road, Chevy Chase, Md. 20015. Dick says: "Ray St. Laurent's Class Letter inspired me to write a long-delayed letter to you. I retired from the Chamber of Commerce of the U.S. in October, 1963. I have not taken any other job and my hobbies, together with some traveling and keeping the crab grass out of my lawn, have kept me well occupied. In February, 1964, we spent two weeks in Puerto Rico with friends and saw a good part of that charming island. The following May we made a 30-day auto trip through the Southeast, visiting friends and relatives at fifteen places in six states, returning via the Blue Ridge Parkway. We now make two trips a year to New England to see my 85-year-old sister in Gardner, Mass., and usually spend a few days in Vermont, New Hampshire or Maine. Last year, we spent several days with **Jim Cudworth** at Tuscaloosa, Ala. He is still Dean of Engineering at the University of Alabama but is thinking of retiring in a year or two. We have spent the last two Christmases with our son in Ft. Worth, Texas. After getting his B.S. and M.S. in mechanical engineering and teaching a year at Duke University, he took a job with General Dynamics, working on the control design of the controversial F-111 (TFX) plane. I want to get to our 45th Reunion next year but am keeping my fingers crossed."

Lawrence Castonguay wrote to Ray about Walter Dietz, '23. Larry's retirement address is 1367 N.W. 4th Avenue, Boca Raton, Fla. 33432. . . . **Edward W. Noyes** journeyed from his winter home in Pompano Beach, Fla., to spend the summer at his home in Pennsylvania, where his address is RD No. 2, Thompson, Pa. 18465. . . . **Frederick F. Olson** says he has retired from the B.F. Goodrich Footwear and Flooring Company, Watertown, Mass., and has moved from Sudbury, Mass., to New Hampshire, where mail should be addressed to RFD, Ossipee, N.H. 03864. . . . **Alfred J. S'iaughnessy** retired as Vice-president and general manager of the Hertz System. He has given up his home in Yonkers, N.Y., and is living at 501 Aylesbury Road, Delray Beach, Fla. 33444. . . . A note from **Howard F. MacMillin**, 840 Tower Road, Winnetka, Ill. 60093, says: "We now have twelve grandchildren. The latest is a little Chinese girl from Hong Kong, who has been fully adopted by our daughter and her husband." Howard is president of the MacMillin Hydraulic Engineering Corporation of Sko-

kie, Ill. . . . **Charles W. Taylor** of the Metropolitan Life Insurance Company reports a new home address at 2030 West Valley Road, Bloomfield Hills, Mich. 48013. . . . Brigadier General **Ludson D. Worsham** has moved from San Gabriel to 1329 W. Muirlands Drive, La Jolla, Calif. 92037. . . . **Myer H. Nalgles** writes: "my business has prevented attending Class reunions, but all the same I wish to be remembered to my classmates." President of Dolphin Swimming Pool Company of Elmsford, N.Y., he lives at 48 Seneca Avenue, Yonkers, N.Y.

All of his many friends will want to join us in extending sincere sympathy to **Paul H. Rutherford** of 7 Valley Road, Nahant, Mass., on the death of his wife on August 16, 1965. Paul retired as general manager of the Delco Division of General Motors and moved from Rochester, N.Y. He had recently phoned Ray St. Laurent that they were planning a visit to Vinal Haven and also a South American tour. Mrs. Rutherford was a member of the Nahant school committee and several other community groups. She had been president of her Class of '23 at Wellesley and an active alumna. . . . **Joseph Wenick**, 37 Cedars Road, Caldwell, N.J., retired chief engineer of the Lightolier Company, writes, in part: "Dorothy and I have returned from Alexandria, Va., where we had the great pleasure of seeing Secretary of State Dean Rusk swear in our son, Martin, on the occasion of his promotion to Grade 6 in the Department of State. He has been assigned to Prague, Czechoslovakia, where he will fill the post of second secretary and vice-consul of the American Embassy. This young man of 26 years has already mastered five languages, English, French, Russian, Farsi and Czechoslovak. Farsi is one of the two official languages of Afghanistan, where he was formerly located. Although Martin is a Brown University graduate, he has a soft spot in his heart for M.I.T. and especially the Class of '21. Should any of our Class ever be in Prague, I hope they will look him up. I am sure he will be a very gracious host. I am still engaged in S.C.O.R.E. work (Service Corps of Retired Executives of the Small Business Administration). The need for our services has advanced to a level where it is deemed desirable to start a new group in the Montclair, N.J., region. I am the secretary and am scheduled to speak about our work to the Montclair Rotary Club. I am also engaged in management consulting work and find it stimulating and satisfying."

Mr. and Mrs. Carole A. Clarke of Brielle, N.J., announce the engagement of their daughter, Eleanor May, to Mr. Joseph Blanton of Cascade, Mich., son of Mrs. Clarence V. Blanton of Portsmouth, Va., and the late Mr. Blanton. Ellie is a graduate of Simmons College, Boston. She is a physical therapist on the staff of Mary Free Bed Guild Children's Hospital and Orthopedic Center in Grand Rapids, Mich. Joe is a graduate of Lynchburg (Va.) College and of the Richmond Professional Institutes of the College of William and Mary, Richmond, Va. He did graduate study at the University of

Virginia. He is the director of the Hearing and Speech Center of Grand Rapids. . . . Maxine and your Secretary went to see the famous Mystic Seaport in Connecticut on our way home from Alumni Day and then stopped over at the nearby Griswold Hotel and Country Club in Groton, where our 45th reunion will be held next June 9-12. We were most favorably impressed by the service, food and facilities. Besides its extensive social business, the Griswold management has considerable experience in handling large conventions and can readily take care of our requirements. Separate dining rooms and meeting rooms, all air conditioned, assure privacy. Numerous attractive shops now occupy the main floor of the hotel. The 6512-yard Shennecossett championship golf course is on 170 acres of hotel property, with the club house and cart house right near the hotel. There is ample parking, a new pier and a large boat mooring area, a well-equipped Olympic pool and an excellent nearby beach. Even the town of Groton has grown up to include huge shopping and modern retail areas. The airport, served by Allegheny Airlines, is near the hotel; railroad and super-highway travel is readily accessible from nearby New London; and the Thames River Juncture with Long Island Sound is at the front door for those who come by boat. We are enthusiastic about the Reunion Committee's choice of site. Hope you won't fail to come and bring your wife to what promises to be the best reunion of them all. Please schedule your vacation for New England now, to include the reunion and Alumni Day and a host of beautiful, interesting and historic places nearby.

Jackson W. Kendall made a hurried business trip from the West Coast to New Brunswick for Bekins Van Lines and planned weekend stopovers to visit Ray and your Secretary. We were disappointed by the necessity for his immediate return and had to be consoled with long distance phone conversations with him. After receipt of many first day covers and fine Canadian commemorative stamps in recent letters, we now learn his proposed world tour with Marge has had to be canceled because an I.C.C. hearing he must attend in Hawaii has been postponed until this month. The Kendalls will fly to Honolulu November 3, stay at the Halekalani (**Harry Field** please note) and then spend about two weeks touring the islands before returning to their home at 401 Hermosa Place, South Pasadena, Calif. 91030. They are still planning a world tour next year and will also attend our reunion. . . . **Leon A. Lloyd** of 35 Spruce Street, Westerly, R.I., wrote a fine letter from Atlanta, Ga., last June, just too late for the previous issue of the Review. Al says, in part: "The enclosed slide is for the '21 file. When Em and I were down this way last March, we visited with Mrs. Clark, our son-in-law's mother, at Smithville, Ga. It is only 15 miles from Leesburg, Ga., so we drove out to Kinchafoonce Lodge to see Ed and Helen Farrand. I took a group picture and am just getting around to sending one to Ed and one to you.

Em and I are again in Atlanta where, on May 28, our third granddaughter, Constance Lynn Clark, arrived to Dr. and Mrs. Clark. As you can imagine, both parents and grandparents are very pleased. Needless to say, we won't be able to get to Alumni Day this year. Sorry to miss it. Please give our best to all our friends. On the way home we plan to stop in Pittsburgh to see our son, Dave, and his wife. He is still in the Rickover program, right now at the nuclear lab, taking six months of high powered study, and says he is 'drinking out of a fire hose.' Retirement is still just fine and we hope you and Maxine are also enjoying it. In Westerly, there are many activities with which one can become associated. We both keep busy but our biggest problem is not taking on too many things to do. However, I can assure you I'd rather wear out than rust out! We'll look forward to seeing you both at the reunion in Groton next June."

Betty and Dugald C. Jackson, Jr., are off on another extended tour, this time around the world. They left New York September 7 by steamer for Bermuda, Madeira and Morocco, to be followed by an overland bus trip along the Mediterranean through Spain, France and Italy. Departing by ship from Naples, they will visit Greece, Egypt, India, Ceylon, Malaysia, Singapore, Thailand, Hong Kong, Japan and Hawaii, touching Los Angeles for a further trip to Acapulco, Mexico, then Balboa, Panama, and a return to Miami about December 21 via the Panama Canal. They will visit with their family in Florida for the holidays before going home to Tetrastemma, Harmony Hills RFD 1, Havre de Grace, Md. 21078. . . . Just as we complete these notes, a long letter, mailed in Madrid, has arrived from **Ralph M. Shaw**, who heads the Pedrick Tool and Machine Company, Philadelphia. If Rufe will bear with us, we'll report his stay in Spain now and hold the balance for a later issue. Says Rufe, in part: "We have just had a most interesting visit here. **Helier Rodriguez** is in California on business. He has a new line, exporting artichokes to the U.S. Graciela was our guest for the evening 'comida' which, in this country, starts at 9 p.m. or thereafter and runs until the guests get tired,—sometimes 2 a.m. or later. In our case, it was 9 p.m. until 1 a.m. and we were at the dinner table most of the time. Graciela was most interesting and it was a pleasant evening." . . . **Saul M. Silverstein** is another world traveler whose splendid reports we must defer for later publication. Announced by a lovely card from Amsterdam with a new Netherlands stamp, Saul was off on his seventeenth foreign trip in May and—to his everlasting credit—back just in time to pick up Rigi and join the gang at Alumni Day in Cambridge. The next thing we knew, he was off to Mexico on a "quickie" tour. We'll try to get our copies of the "Silverstein Star-Satellite" in better order for a further account of Rogers Corporation's globe-trotting chief executive.

It is with profound sorrow that we record the passing of four of our members and extend to their dear ones sin-

cerest sympathy from all of us. . . . **Harold Daniel Moore** died in Redwood City, Calif., on April 18, 1960. He was born in Alma, Mich., on April 24, 1899, and prepared for Technology at Alma High School. At the Institute, Spud was a member of Kappa Sigma and Stylus. During World War I, he was a private in the S.A.T.C. at M.I.T. He was graduated with us in Course II and became associated with the Gay Engineering Corporation, Los Angeles, as a refrigeration engineer. Then for many years he was with the Refrigeration and Air Conditioning Division of Worthington Pump and Machinery Corporation, Los Angeles, and was its western regional manager at the time of his retirement in 1956. He was a member of the American Society of Refrigeration Engineers and wrote for its technical publication. In 1952 he was sent to Johannesburg, South Africa, to cooperate with the English General Electric Company in air conditioning a large mine. A soaring enthusiast, he indulged in the sport at El Mirage Dry Lake as a member of the Southern California Soaring Association. He maintained contact with his fraternity brother, Elmer L. W. ("Jack") Barry, head of the San Francisco office of Shell Oil, until Jack's death in 1950. The two had done exploring for an oil company in Wyoming when they first came west. Harold married a home town girl, Florence J. Purdy, a 1921 graduate of Alma College. He is survived by his wife; a son, George, of Palo Alto, Calif., who has degrees from Cal Tech and Stanford; a daughter, Mrs. Stanley Thomas of Burlingame, Calif., a graduate of U.C.L.A. and U.S.C.; a brother, Arlan W. Moore of Beverly Hills, Calif.; and two granddaughters. Mrs. Moore, to whom we are indebted for aid in preparing these notes, now lives at 10858 Fairway Court E., Apartment 117, Sun City, Ariz. 85351. . . . **Charles Henry James O'Donnell** of 17 Webster Road, Milton, Mass., 02186, died on May 13, 1965. A native of Lowell, he was born on February 13, 1899. He prepared for the Institute at Lowell High School. At Technology, he was a member of the Mechanical Engineering Society and the Catholic Club. Charlie was graduated with us in Course II and became associated with the design engineering group of the Lowell Gas Light Company. He then joined the Boston Consolidated Gas Company, now the Boston Gas Company, and was variously manager of its early home heating department, superintendent of home heating, manager of sales, superintendent of sales development and rates and, most recently, manager of the rate department. He had retired last year after 35 years of service. He was a member of the Lowell Council of the Knights of Columbus and of the Holy Name Society of St. Agatha's Church of Milton. He was an accomplished amateur photographer. He is survived by his wife, the former Katherine E. Sullivan; two daughters, Mrs. John Powell of Scituate and Miss Katherine A. O'Donnell of Plymouth; a sister, Miss Marie J. O'Donnell of Quincy; and three grandchildren. **Phil Nelles**, to whom we are indebted for aid in preparing these

notes, writes: "Charlie and I were close in our school work as part of a team of four who collaborated on our senior year major problem. We were also contemporaries in the gas utility business and among the pioneers of gas home heating." . . . **Perley Bartlett Kimball** of 355 Pleasant Street, Rumford 16, R.I., died in May, 1965. Born in Dayton, Ohio, on June 29, 1899, he prepared for M.I.T. at State High School and Purdue University. At the Institute, he was a member of the Electrical Engineering Society. During World War I, he was an apprentice seaman in the S.N.T.C. at Technology. He was graduated with us in Course VI and had been with the New York Central Railroad and the General Chemical Company in New York City before joining the Rumford Chemical Works of Rumford, R.I., where he became chief engineer. . . . Brigadier General **Boyd Wheeler Bartlett** of Castine, Maine 04421, died on June 24, 1965. A native of Castine, where he was born on June 20, 1897, he was graduated from Bowdoin College summa cum laude in 1917. He was a member of Phi Beta Kappa, won letters in football and tennis and was captain of the hockey team. He then entered the U.S. Military Academy, graduating third in a class including Generals Gruenther, Twining, McAuliffe and Wedermeyer. He then attended Technology and was graduated with us in Course I. He later obtained master's and doctor's degrees in physics at Columbia. On his honorable discharge from the Army, he became a physicist at Bell Telephone Laboratories, New York, and then joined the Bowdoin faculty as professor of physics. He returned to military service as a major in 1942 and was a colonel at the end of World War II. He went back to West Point as professor and head of the Electricity Department and, at his retirement with the rank of brigadier general, he was professor of electrical engineering and head of the department. Bowdoin awarded him an honorary doctor of science degree and he was elected an overseer and a trustee of the college. He was also a trustee of the Association of Graduates of West Point. A member of Delta Kappa Epsilon, he was the author of many scientific articles and he inaugurated the study of nuclear physics at the Military Academy. He was also a member of the American Physical Society, American Society of Physics Teachers, American Association for the Advancement of Science and American Society for Engineering Education. He held the Legion of Merit Award with an Oak Leaf Cluster. He is survived by his wife, the former Helen A. Allen of Peabody, Mass.; and a brother, Frederick S. of Radnor, Pa.

Memo: Two big dates are coming up. The 45th reunion of the Class of '21, to be held from June 9 to 12, 1966, at the Griswold Hotel and Country Club on Eastern Point, Groton, Conn., and M.I.T. Alumni Day 1966 on June 13 in Cambridge. You will shortly receive preliminary details of our reunion in a mailing from Reunion Chairman **Mel Jenney**, which will include a questionnaire from your Secretary. Please return the ques-

tionnaire promptly. We hope you will indicate that you plan to attend and want to receive later mailings but, whether or not you can attend, please return the questionnaire as soon as possible. Your Secretaries greatly appreciate your very considerable help in sending us news about yourself and the '21ers you meet or hear about. We'll be able to give extra thanks for receipt of the questionnaire between now and Thanksgiving.—**Carole A. Clarke**, Secretary, 608 Union Lane, Brielle, N.J. 08730; **Edwin T. Steffian**, Assistant Secretary, c/o Edwin T. Steffian and Associates, Inc., 19 Temple Place, Boston, Mass. 02111; **Melvin R. Jenney**, Reunion Chairman, c/o Kenway, Jenney and Hildreth, 24 School Street, Boston, Mass. 02108.

'22

This is one of the happiest days of your Secretary's experience in writing Class notes because a great deal of information is available. Please continue sending in news about yourself and your experiences with family, travel, business, Social Security income and the joys of retirement. As previously scheduled our Reunion on Old Farm Road in Dover on Sunday, June 13, was an enjoyable and hilarious occasion. **Parke Appel** and his younger-than-ever bride **Madeline** provided spirited libation and quantities of delicious food while the rest of us provided the entertainment and the latest stories. It was the consensus that the addition of the ladies to our Class group was highly desirable. Those attending Sunday and/or Monday's activities included **Parke** and **Mrs. Appel**, **Hall** and **Mrs. Baker**, **Robert** and **Mrs. Brown**, **Don** and **Mrs. Carpenter**, **Yardley** and **Mrs. Chittick**, **Paul** and **Mrs. Choquette**, **George** and **Mrs. Dand**, **w, Larry** and **Mrs. Davis**, **Fred** and **Mrs. Dillon**, **Richard** and **Mrs. Ferguson**, **Whit** and **Mrs. Morris**, **Gens**, **Larry** and **Mrs. Gentlemen**, **Oscar** and **Mrs. Horovitz**, **William Hyland**, **Ted** and **Mrs. Miller**, **Randy** and **Mrs. Myer**, **Winthrop Potter**, **Fearing Pratt**, **Willard Purinton**, **Bill** and **Mrs. Russell**, **Roscoe Sherbrooke**, **Hugh Shirey**, **Dale Spoor**, **Florence Stiles**, **Kenneth Sutherland**, **Edwin Terkelsen**, **Wilfrid** and **Mrs. Thomson**, **Sob Tonton** and **Karl Wildes**. Most all of these were at the Alumni Luncheon under the tent (it was chilly), the cocktail party in the Armory and the dinner in the Field House. We all enjoyed the Boston Symphony, and walking around the campus during the day brought us up to date on the rearrangements and additional space provided by the new building program. Be sure to put this on your schedule as a must for June 1966. You will be glad you did.

C. George Dandrow has announced his new activity as consultant in the field of industrial marketing. He will continue to live in Chatham and do business at 122 East 42nd Street, New York City—phone YUkon 6-1884. . . . Among his many other retirement careers, **Don Car-**

penter has become chairman of the Joint Hospital Management Committee of Wilmington. They propose merging three hospitals by creating a Wilmington Medical Center as a community organization. This is a sizeable undertaking, illustrated by the fact that these hospitals employ 2200 people, not including the 450 doctors on the staffs. . . . We are happy to receive a report from **Frank Kurtz** in Delray Beach, Fla., of his continued tennis and bridge activities. He had enclosed a lovely picture from the Deerfield newspaper showing **Fred Dillon** and his bride relaxing in their apartment at Intracoastal House. The Dillons find time for bird-watching and golf as well as bridge. . . . **Ted Riegel** has now moved next door to Frank at 702 Lakeshore Drive despite the fact that Frank's address is 734 N.W. 9th Street. We were sorry to miss Frank and his favorite bridge partner at the Reunion. They were spending the time in South America on archeology. . . . We are happy to hear of the election of **Earl T. Heitschmidt** as president of the Los Angeles Chapter of Lambda Alpha, the National Honorary Land Economics Fraternity. Lambda Alpha was organized to stimulate the intensive study of land development, use and economics with one of its purposes to establish scholarships. . . . **Crawford Greenewalt**, chairman of Radio Free Europe Fund, has been in the midst of a campaign toward their 1965 goal of \$12 million to help keep "the enemy on the run."

Francis J. Laverty of Ithaca, N.Y. has retired as superintendent of the Department of Public Works. In World War II he was Lieutenant Colonel on General Bradley's staff and has more recently been with the City of New York and Westchester County. . . . **Walter R. Moore, Jr.** of Middlegrove, N.Y. retired in 1960 as assistant treasurer of the State Reservation at Saratoga Springs. He says that it is quite fitting that he is now in the antique business. . . . **Charles H. Whittum** of Wayne, Pa., has retired to spend his time on the eastern shore of Maryland, where he runs a small farm with special interest in boating and fishing. . . . **George Schumacker** of Cleveland, Ohio, sends regards and reports that he is "still kicking, but feebly." Professor **Albert Powell** of State College, Pa., retired last year with emeritus rank from Lafayette College. He spent last winter at Bradenton Beach, Fla., and has now purchased a mobile home in Paradise Bay Trailer Park for winter use. . . . **Thomas M. Keiller** of Houston, Texas, is retiring as engineering consultant from Houston Light and Power Company and is planning on going into consulting engineering in the area. Tom had previously served twenty years with Stone & Webster and became a Lieutenant Commander in the U.S. Naval Reserve at the Manhattan District. He is a Fellow of the Institute of Electronic and Electrical Engineers and a member of many professional and business organizations, including the Houston Power Squadron. . . . **Harvey L. Williams** of Philadelphia has retired as President and Director of Philco International Corporation and

has become President and Director of The Company for Investing Abroad, a subsidiary of Fidelity-Philadelphia Trust Company. Harvey was recently awarded a Certificate of Appreciation by the Indian government for his assistance in promoting the interest of American companies in commercial and industrial projects in India. He was one of the official representatives of the United States to the 20th Biennial Congress of the International Chamber of Commerce held at New Delhi last February. He acted as chairman of the Congress session dealing with the development of international commerce, the progress of the "Kennedy Round" and the effects of the newly organized Trade and Development Committee within the United Nations.

Your Secretary was delighted to receive a phone call from Gowanda, N.Y., on Labor Day. **Donald F. Carpenter** called to check on attendance at the Alumni Officers Conference and the meeting of the Future Planning Committee at the Institute on September 9. Don had been spending the summer at Edgartown which was described by Elizabeth Bowie Hough when she first arrived as "so quiet, so blue, so golden . . . so neat, so clean, thrilling with hues of fall flowers and growing grass." This is from a glowing description of the area in the Saturday Review of August 21. Don has finished a most constructive year as President of the M.I.T. Alumni Association and continues to work as hard as ever for a greater Institute. . . . **Dr. Edward L. Bowles** has been elected president of the Whittin Machine Works of Wellesley, Mass. He has been a member of the board of directors and will serve in his new executive capacity until a new chief officer has been selected. Ed has had a distinguished career in electronics and communications. . . . In a most interesting article published in the Connecticut Industry Magazine for May, **Fay H. Osborne** is given credit for the development of the porous, long fibre tea bag paper introduced by C. H. Dexter & Sons of Windsor Locks. His contribution was the technology which permitted the use of very long fibres on a wet forming machine. This was the first of many new concepts of interesting products which are now standard with the Dexter company. . . . To refer again to **Don Carpenter**, his report to the M.I.T. Alumni Association, dated June 1965, tells of the activities for the year in which there were many representatives of our Class. We may all be proud of the contribution made to M.I.T. by the Class of 1922 in the personal efforts of those in the Corporation and those serving on the various committees in all fields of Institute activities. Any of you who have not attended our annual reunion will be sure to be at the 45th in Osterville, at The Winona. You will be brought right up to date on everything and everybody.

The sympathy of the Class is extended to the families of **Fletcher M. Devin**, Ft. Lauderdale, **Theodore Schwamb**, Milton, **Leonard Passano, Jr.**, Upper Gloucester, Maine, **George E. Dean**, Upper Montclair, N. J., **Mark W. Ellsworth**, Pasadena, Calif., **William F. Herlihy**,

Brookline, **Francis S. Sinclair**, Keene, N. H.

Among the new addresses noted are: **Minot R. Edwards**, Houston, Texas; **John J. Cychol**, Paris, Ill.; **William B. Elmer**, Boston; **Clarke T. Harding**, North Chatham; **Albert V. Tiley**, Essex, Conn.; **Harold R. Blomquist**, Centerville, Mass.; **Paul E. Lord**, New York City; **Melton M. Manshel**, New York City; **Stephen B. Neiley**, W. Dennis, Mass.; **Thomas H. Stubbs**, Atlantic City, N. J.; **C. Ford Blanchard**, Falls Church, Va.; **Joseph J. Forrester, Jr.**, Niagara Falls, N. Y.; **Fearing Pratt**, Hingham, Mass.; **John L. Liecny**, Phoenix, Ariz.; **Louis J. Caldor**, Woodsville, N. H. More news follows after the Alumni Officers Conference. Don't miss next month!—**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, N. Y. 14203; **Oscar Horovitz**, Assistant Secretary, 33 Island Street, Boston 19, Mass.

23

Your Secretary reports that he and Mrs. Lange were unable to attend Alumni Day as they were on a tour of the Hawaiian Islands, California, Texas, and Louisiana. It has been reported that the following attended Alumni Day, with 20 at the banquet: **Allis, William P.**; **Bond, Horatio L.** and Mrs.; **Chatto, Harry M.** and guest; **Drew, Thomas B.** and Mrs.; **Ferguson, Hugh S.** and Mrs.; **Greenblatt, E. Louis** and guest; **Hayden, Herbert L.** and Mrs.; **Johnson, George A.**; **Kaufman, David**; **Knight, Elliot P.** and Mrs.; **Lockhart, Howard A.** and Mrs.; **Russell, Howard F.** and Mrs.; **Skinner, David W.** and Mrs.; **Valentine, Allard M.** and Mrs. and guest; **Weeks, Miss Dorothy W.** . . . **Herbert A. Barnby** of 3030 Kenwood Blvd., Toledo 6, Ohio, retired Owens-Illinois, Inc., executive and internationally known expert on packaging, died of a heart attack in Madrid, Spain, on May 2, 1965. Mr. Barnby was on a European vacation trip with his wife, Bernice, when he was stricken in Madrid. He was director of packaging research for O-I for 31 years before his retirement April 1, 1963. Mr. Barnby was a native of Kansas City, Mo. He was a radio operator with the U.S. Navy in World War I, was graduated from the University of Kansas with a bachelor of science degree in 1921, received a master of science degree from M.I.T. in 1923, then went to work for Continental Baking Corporation in Chicago. Later he spent four years with the Glass Container Association in New York City before joining O-I in 1929 as director of packaging research. He was a charter member of the Packaging Institute, Inc., and the Institute of Food Technology. He served on the advisory committee of the Nutrition Foundation, Inc., and was an advisor to the U.S. Army Quartermaster's Food and Container Institute. He was a member of the American Chemical Society. Other

memberships included First Congregational Church and Inverness Club. Surviving, besides his wife, are a son, **Donald W.**, and daughter, **Mrs. Jean Fairman, Jr.**, both of Pittsburgh, and a grandson.

Philip L. Coleman, Class Estate Secretary, in a letter of 12 July, 1965, has distributed a pamphlet to all classmates entitled "The Eighth Man." If you would like more information on how to provide for a deferred gift to M.I.T., write to Estate Secretary, Room E19-439, M.I.T., Cambridge, Mass. 02139. . . . **Harold B. Gray**, 182 North Shore Drive, Syracuse, Ind., writes May 19, 1965: "Nothing of interest except that I seem to be growing old. If you have any solution for the problem, let me know, please." . . . **Herbert L. Hayden** writes, "We are both fine. Went to Florida to get some warm weather this spring. Have been playing a little tennis and getting the garden under way. We plan to take in the World's Fair next week. . . . **William S. LaLonde** of Short Hills, New Jersey, has been named distinguished professor at Newark College of Engineering in recognition of his outstanding teaching abilities and services. Professor LaLonde has been a member of N.C.E. faculty since 1929 and chairman of the college's civil engineering department since 1946. A specialist in structural design, he is a licensed professional engineer in New Jersey and New York and the author of two professional texts. Professor LaLonde is a charter member of the M.I.T. Club of Northern New Jersey. . . . **Leander H. Poor**, 97 Durand Road, Maplewood, N.J., wrote on May 17, 1965: "Just returned from two years in Queensland, Australia, supervising rehabilitation of Q&R's Mt. Isa line and initiating construction of new 115-mile railroad to move coking from Thies-Peabody Mitsui mine to Gladstone for export to Japan." . . . **Percival S. Rice**, 59 Outlook Drive, Lexington 73, Mass., wrote on May 20, 1965: "Began teaching Civil Engineering at Tufts, fall of 1947. Had sabbatical leave at M.I.T. 1959-60. Since then all my time has been on engineering counseling at Tufts. I am responsible for the freshman and sophomore engineers, all 350 of them!" . . . **Howard F. Russell**, Christian Hill, R.F.D. #1, Milford 55, New Hampshire, wrote on July 6, 1965: ". . . you are familiar with the fact that I was one of the charter members who formed the Minuteman Flight of the Order of Daedalians at L. G. Hanscom Field, Bedford, Mass., last April. . . . last May a group of us flew from Hanscom to Kelly AFB, San Antonio, Texas, for the annual meeting of the Order. Saw **Colonel Walter E. Richards** of our class there. He is a former Vice Commander of the Order and still is quite active in it. Inasmuch as membership is limited to World War I pilots, their male progeny or named pilots of the Air Force, he and I are the only known members of our class that are eligible. I have been a member of three flights: San Francisco, National at Washington, D. C., and now "the Minuteman Flight" at Hanscom. For the record I would like to say that on the flight to Kelly AFB and back I formed a very high opinion of the U.S. Air Force and its efficiency—pro-

vided the politicians would leave it alone. Have been having some correspondence with the son of **Ernesto B. Ledesma**, Course II, lately. Ernesto has plans to come to the U.S.A. in the near future; in fact, he may be on the way now. We have invited him to visit us so if their plans permit and we do make it I will let you know." . . . **Robert C. Sprague**, founder of Sprague Electric Co., was the commencement speaker at Worcester Junior College exercises, June 12, in Worcester Memorial Auditorium. In 1953 he became chairman of the board and chief executive of the firm. Among the government posts he has held are chairman, agent and Director of the Federal Reserve Bank of Boston, 1955 to 1960; Consultant on continental defense to the National Security Council, 1954 to 1958; and member of the air defense panel of President Kennedy's Science Advisory Committee. He is also a Fellow of the American Academy of Arts and Sciences.

. . . **Dr. Julius A. Stratton**, President of M.I.T., has been elected a director of the Westinghouse Electric Corporation, Pittsburgh, Pa. . . . **William W. Upham**, 7000 Bay St., St. Petersburg Beach 6, Fla., wrote, May 1, 1965: "Have lived in greater St. Petersburg since graduation, married Rebekah Brown, Sewickley, Pa., in 1928; we have six grandchildren. Past Pres. of St. Petersburg Board of Realtors, Past President Gulf Beach Rotary Club, Past Mayor of St. Petersburg Beach. Presently Board Member and Treasurer Florida Presbyterian College, President of Aramaic Bible Society which has booth at Protestant Center at World's Fair." . . . Notification but no details have been received of the following deaths: **James O. Coleman**, 5 Nehoiden Road, Waban, Mass. 02168 in 1964; **Samuel F. Gordon**, 38 Westmoreland Place, St. Louis, Mo., on Sept. 22, 1964. . . . The Alumni Office has advised of the following changes of address: **Erwin G. Schoeffel**, 148 Wilson Hill, Messena, N. Y. 13662; **Stephen B. Metcalfe**, Neck Road, Madison, Conn. 06443; **Malcolm L. Carey**, 1427 Lucerne Road, Montreal 16, P. Q., Canada; **George W. Bricker, Jr.**, c/o American Embassy U.S.-AID APO 9271, New York, N. Y.; **James E. Brackett**, 90 Joachim Schmidt, Irving, Texas 75060; **Douglas R. Waterman**, 2360 Colorado Blvd., Denver, Colo. 80207; **Charles E. Roche**, 850 Hamilton St., Rahway, N. J. 07065; **Bertrand A. Landry**, 3992 Chelton Place, Columbus, Ohio 43221; **Edmund S. Pomykala**, 1520 So. Olive Avenue, West Palm Beach, Fla. 33401; **Basil O. Stewart**, Apt. 312, Seashore Manor, Biloxi, Miss. 39530; **Frederick O. A. Almquist**, 52 Naomi Drive, East Hartford, Conn. 06118; **Kenneth G. Crabtree**, Hancock, Maine 04640; **Hou Y. Hsu**, Jardine Mathieson Co. Ltd., P.O. Box 70, Hong Kong, BCC; **Leslie W. Powers**, 11959 84th Ave., North Largo, Fla. 33542; **Frederick J. Ranlett**, 6451 So. Lakeview St., Littleton, Colo. 80120; **Lawrence J. Tracy**, 21 Garfield Rd., Box 53, Belmont, Mass. 02178—**Forrest F. Lange**, Secretary, 1196 Woodbury Avenue, Portsmouth, N. H. 03801; **Bertrand A. McKittrick**, Assistant Secretary, 78 Fletcher Street, Lowell, Mass. 01852.

'24

The 6th Alumni Officers Conference was held at M.I.T. in early September. There was a good representation from 1924, headed by **President Cardinal**. Others were: **Ave Ashdown**, **Dick Lassiter**, **Ray Lehrer**, **Bill MacCallum**, your Secretary, and, the first time he had been at M.I.T. since 1924, **Jack Cannon**. It was a busy and informative two days, one of the highlights being the first use of any part of the not-yet-completed Student Center. We had cocktails in the Lobdell Dining Room, and dinner in the La Sala de Puerto Rico. The latter was made possible by gifts of Puerto Rican alumni spearheaded by **Luis Ferre**, member of the M.I.T. Corporation.

No doubt many of you were in exotic places over the summer, but few of your travels filtered through to Cambridge. Of course the **Roigs** can be depended on to be hopping off somewhere. This time it was Europe, accompanied by daughter and granddaughter. London, Berlin, Vienna, Switzerland, Rome—they made the Grand Tour and returned in late summer on the Queen Elizabeth. . . . The **Russ Ambachs** did South America by air. They stayed on the ground in Santiago long enough for a reunion with **Johnnie Fitch** and **Chile Serrano**. Chile's full name now, in typical Latin American fashion, is **Horacio Serrano Palma**, and this is the first evidence we've had through the years of any of us seeing him.

The **MacCallums** joined the **Wilmoit Peirces** and the **B. Alden Cushmans** at the wedding of **Pret Littlefield's** son Peter to **Phyllis Thornton** on September 3. The wedding was at St. Thomas Church in Whitemarsh, Pa. . . . And **Clint** and **Allora Conway** left Florida long enough in July to come north to Connecticut for the wedding of a niece. They stopped off to see the **Cardinals** enroute. . . . While we're on the subject of nuptials, one of more than passing interest to us took place last January 5, that of **Felix Stapleton**. He married an old friend, a Mt. Holyoke graduate, in Melrose, Mass. She has spent her life teaching High School English. Now they have a bit of a problem, owning two homes, one in Melrose and one in Bethesda, and last we knew they were wondering what to do about it.

Periodically, distinguished M.I.T. alumni are called upon to represent the Institute at inaugurations. One such occasion was the inauguration of the first President of **Fulton-Montgomery Community College**, N.Y., and the gentleman tapped for the occasion was **Andrew P. Kellogg**. Last spring the **Kanes** visited the Kelloggs briefly at their beautiful and spacious farm outside of Schenectady. Or rather, we visited Andy at the farm, and Bubbles in the hospital, where she had just undergone a rather serious operation. Happily, all went well.

Last February **Gib Cowan** had a heart attack. In mid-April he got away to Hawaii for a couple of weeks and "renewed my interest in life." He is now semi-retired, and **Gib Jr.**, is running the store. . . . It's **Dr. Hartselle D. Kinsey** now.

In June Roanoke College (Va.), awarded him an honorary Doctor of Science degree, "recognizing his contributions in the field of industrial management." Sox did his undergraduate work at Roanoke before coming to M.I.T. for his S.M. in chemical engineering. He has been on Roanoke's Board of Trustees for many years.

Harold G. Donovan was our first Class Secretary, and for many years wrote these notes. He has been in the insurance business for forty years. Four years ago he joined the Hanover Insurance Co., and in July was named secretary of the Hanover Co., and the Fulton Insurance Co., known as the Hanover Group. Hal lives in New Jersey.

Malcolm T. Anthony will be well remembered by many of us, although he left after our freshman year. He has been in the utility business ever since, for the last thirty years with the Tampa Electric Company, in Florida, in recent years as Vice-president for Sales. This summer he took an early retirement because of ill health. . . . Looks like we have a couple of other retirees, on the basis of address changes. **Emerson Van Patten** has left the cold winters of Milwaukee for San Diego, and **Jay Buswell** has moved from Boston to Clearwater, Fla. **Walter Weeks**, who retired last year, has bought a house in Glenview, Ill., and moved there from New Hartford, N.Y.

Sorry to have to report several more deaths. **Mrs. Jean M. Ashton** died in Washington, D.C., last February; **Richard B. L. Fleming** in Alabama at the end of last year; **Willard M. Marks** in Beverly Hills more than a year ago; **Dr. Rienzi B. Parker** on Cape Cod, no date given; **John L. Tatman** in Ohio last year; and **Kenneth F. Williams** in Connecticut this summer. . . . We have more information about **Joseph F. Taylor**, who also died this summer. He lived in Columbus, Ohio, where he was vice-president of the Maurey Manufacturing Corporation. For thirty years he was with Goodyear and was president of the Rubber Manufacturers Association for four years. He was also active in the Naval Reserve with the rank of Lieutenant Commander.

That's a sad note on which to close our first column of the fall, but it's a fact of life that we can expect our ranks to continue thinning at an increasing rate. Our total membership now stands at 631.—**Henry B. Kane**, Secretary, M.I.T., Room E19-439, Cambridge, Mass. 02139.

'25

The Fortieth Reunion gathering is now a matter of history, but it does seem appropriate that a list, in complete detail, should appear in this column for the record. It was by far the biggest gathering of 1925 Classmates and wives in the forty-year history of the Class. It appeared also that every one enjoyed himself to the fullest, and the only regrets expressed were that more could not have been with us on this occasion. The following list indicates all of those who appeared at

some or all of the functions which started shortly after noon on Friday, June 11, and concluded with the Alumni Day activities on Monday, June 14.

Bill Asbury, Elizabeth, N.J.; Henry Bacon, Brooklyn, N.Y.; Bill and Virginia Bailey, Pittsburgh, Pa.; Harold and Rosalie Bishko, Elmira, N.Y.; Mal and Connie Blake, Bethlehem, Pa.; Harrison and Freda Browning, Tucson, Ariz.; Ted and Linda Butler, Grafton, Mass.; Chip and Margaret Chippendale, Litchfield, Conn.; Maurice and Edith Conkey, San Francisco, Calif.; Charlie and Marian Cooper, Newark, Del.; Ed Cousins, Norwood, Mass.; Al and Betty Crowell, Fort Worth, Texas; Fred and Nan Cunningham, Stamford, Conn.; Tod and Helen DeFoe, St. Croix, Virgin Islands; Bob and Frances Dietzold, Summit, N.J.; Fred Dolan and wife, Milton, Mass.; Chink and Lillian Drew and daughter, Garden City, Long Island, N.Y.; Connie and Carol Enright, Greenwich, Conn.; Mr. and Mrs. James Evans, Washington, D.C.; Gil Fletcher, Portsmouth, Va.; Fred and Ruth Foss, Cranston, R.I.; Doc and Evelyn Foster, Cambridge, Mass.; Maurice and Ruth Freeman, Winchester, Mass.; Bernie and Elsa Freudenthal, Baltimore, Md.; Frank and Dorothy Fricker, Birmingham, Mich.; Willard and Madeline Gardiner, Cambridge, Mass.; Sam and Dorothy Glaser, Boston, Mass.; Dave and Bernice Goldman, Newton, Mass.; Fred and Eleanor Greer, Winchester, Mass.; Ben and Trudy Groenewold, Sarasota, Fla.; Phil and Doris Gruber, Shawnee Mission, Kansas; Gus and Grace Hall, Wauwatosa, Wis.; Pace and Margaret Hammond, Stow, Ohio; Ed and Mary Harris, Lynchburg, Va.; Bob and Grace Hodson, Stoneham, Mass.; Jim Howard, Waltham, Mass.; Wade and Betty Johnson, Cuyahoga Falls, Ohio; Don Jones, Boston, Mass.; Kamm Kametani, Tokyo, Japan; Hyman and Molly Katz and daughter, Chestnut Hill, Mass.; Dan and Kay Keck, Neenah, Wis.; George Kohfeldt, Dallas, Texas; Yu and Wei-Zing Ku, Philadelphia, Pa.; Ed and Del Kussmaul, Westwood, Mass.; Stan and Grace Lane, Westfield, N.J.; Mr. and Mrs. Ed Lynch and family, Wakefield, Mass.; Bill and Lee Mahoney, West Hartford, Conn.; George and Kathryn McDaniell, son and daughter, Borger, Texas; Ronald and Ruth Mitchell, Stafford Springs, Conn.; Frank Mulcahy, Lawrence, Mass.; Ed and Betty Murphy, and daughter, Armonk, N.Y.; Harry and Jeanne Newman, South Orange, N.J.; Arch and Dot Nickerson, East Weymouth, Mass.; Rufus and Ruby Palmer, Pittsburgh, Pa.; Perk and Phoebe Perkins, Nutley, N.J.; Tom and Sue Price, Erie, Pa.; Ken and Dot Proctor, Shrewsbury, Mass.; Joe and Ruth Russell and two daughters, Houston, Texas; Milt Salzman, Lynbrook, N.Y.; Roland and Evelyn Seabury, North Weymouth, Mass.; Mel and Sel Shikes, Wellesley Hills, Mass.; Sid and Kay Siddall, New York City; Les and Nuala Smith, West Hartford, Conn.; Sam and Elinor Spiker, New York, N.Y.; Ave and Frances Stanton, Natick, Mass.; Bill and Louise Steinwedell, Wilmette, Ill.; Don and Ida Taber, Holyoke, Mass.; Unc and Gladys Tarleton, Pittsfield, Mass.; Mae (Watson) Tripp, Nutley, N.J.;

Dick and Helen Tryon, Westfield, N.J.; Frank and Ruth Turnbull, Milton, Mass.; Van and Evelyn Van Tassel, Chicago, Ill.; Mr. and Mrs. Fred Walker, Haddam, Conn.; Lynn and Irene Wetherill, Pittsfield, Mass.; Rick and Pat Wheeler, New York, N.Y.; Mr. and Mrs. Courtenay Worthington, Dedham, Mass.; Foster and Anne York, Evanston, Ill.

The man who did such a marvelous job of chairing this important Reunion, **Dave Goldman**, passed away very suddenly on August 21, 1965. This was a shock to all of us and I am sure it will be to those of you now reading these notes who had not yet learned of his passing. In the funeral notice, Dave's wife, Bernice indicated that in place of flowers contributions could be made in Dave's memory to the M.I.T. Alumni Fund. This is indeed a fine expression of the loyalty which Dave felt to M.I.T. and certainly to the Class of 1925.

During the Reunion, President **Fred Greer** appointed a Nominating Committee composed of **Tod DeFoe** as Chairman, working with **Gus Hall** and **Karl Van Tassel**. The Committee reported their nominations at a business meeting held on Saturday evening, and the following officers were elected: **Fred W. Greer**, Chairman of Executive Committee; **Sam R. Spiker**, President; **Dan H. Keck**, Vice-president; **Ben E. Groenewold**, Vice-president; **F. L. Foster**, Secretary and Treasurer; **Garvin A. Drew**, Class Agent; **Edwin E. Kussmaul**, Historian.

A word should be said regarding the 40th Reunion Gift and the success of the Class in setting a record for contributions to the Alumni Fund in a single year. The work of **Mac Levine** and **Sam Spiker** in making this accomplishment possible cannot be discounted in any way; and the Alumni Association has recognized their great contributions by awarding both Mac and Sam Certificates of Appreciation for their outstanding work.

The summer months have brought word of the passing of several classmates and the sympathy of the Class is extended to their families. **Jose G. Amaro** of Montevideo, Uruguay, died on February 2; 1962; however, the word of it reached your Secretary late in June. . . . **John G. Beagan** of Providence, R.I. died on April 6, 1965. . . . Lt. Commander **Francis X. Maher** died in San Leandro, California on January 6, 1965. . . . Word has also come in of the passing of **John P. Clough** in Worcester, Mass.; however, no date was given us.—**F. L. Foster**, Secretary, Room E19-702, M.I.T., Cambridge, Mass. 02139.

'26

With excellent intentions your Secretary grabbed the Class Notes folder in the dim light while rushing out of the Pigeon Cove house. Settling down on the commuter train from Rockport to Boston with a pad and pen, we quickly learned—you guessed it—we grabbed the wrong folder. It's excusable on the basis that we have been "camping out" all summer in a house that we usually rent while the new

'26 Headquarters is being built. Folders labeled Carpenter, Painter, Mason, etc., are all over the place so we had one chance in twenty. Tom Pitre has been living in the "Fo' castle" all summer and has assumed the title of chief inspector. Each evening upon returning from the office he has greeted me with a quick resume of the days accomplishment and it has been increasingly more useful as the reports became "they plastered the inside of the closets today," "Bill put in all of the electric plugs" and many other hard to detect jobs. There's a house there now and we can say with somewhat more assurance that we will be ready to greet the great Class of '26 at the time of our 40th next June. Reunion Chairman **Don Cunningham** came down a couple of weeks ago to make his initial inspection and after measuring the girders (which came from the demolished Rockport R.R. Station), he agreed that they will support the increased weight of the Class of '26. I believe his decision was supplemented by the fact that this weight moves somewhat slower than at earlier reunions. One reason for writing on the commuter train is that the weekend included the sixth Alumni Officers' Conference at the Institute. The following '26 men were registered for the conference: **Don Cunningham**, **Louis Darmstadt**, **Bob Dawes**, **Jim Killian**, **Ted Mangelsdorf**, **Pink Salmon**, **Dave Shepard**, **George Smith** and **Deke Taylor**. As I am sure you have already suspected, there was, as Deke Taylor called it, a pre-reunion reunion by most of this group. We grouped during a reception in the Harold Edward Lobdell Room of the new Student Center. This room is an inspiring memorial to "Lobby" and it was a privilege for us to be the first to gather in it. With this type of gathering there was no opportunity to inspect detail so the opportunity of grasping the feeling of the room, as already mentioned, was inspiring. The building is on the site of the old "Coop" that we knew and the high ceiling room is all glass. In a busy area how can an all glass walled room be inspiring? It was achieved by putting it on the second floor so that looking out none of the traffic and confusion of the street is visible—only the imposing facade of the main entrance to the Institute, the Kresge Auditorium, the Chapel; and, as if to climax what I was admiring, a jet that had taken off from Logan Airport seconds before streaked across the sky in the evening sun, forming a living technological mural on one entire glass wall. It had disappeared even before my raptured mind could call it to the attention if another classmate. Back to our pre-reunion, we heard about Deke Taylor's eighty-acre farm in New Hampshire that has enough rooms to house all of his seven children and some of the grandchildren (all at once?). Deke is still in the chemical business in Chicago making chemical iron. Ted Mangelsdorf retired as Vice-president of Texaco in June and has been busy traveling with Mrs. Mangelsdorf. We missed Dave Shepard, who had been around in the afternoon to attend a Corporation Executive Committee meeting with Ted. Jim Killian did not get to this

particular '26 gathering because he was the principal speaker at the dinner immediately following. Jim's speech as always was outstanding. We have collected a few clippings during the summer months so let's take a look at a couple. "The Hartford Insurance Group has established a regional office in Boston, with **Harvey C. Abbott**, assistant manager. The Boston Regional Office will supervise company activities in eastern Massachusetts, Maine and New Hampshire." Congratulations to Harvey! . . . Here's a surprise and a real interesting one: "The appointment of **Robert W. Richardson** to the newly-created position of associate director of development at Pennsylvania Military College has been announced by the college's president, Dr. Clarence R. Moll. Richardson retired in April after a 32-year career with the Ethyl Corporation, the final 15 years of which were as manager of the district territory comprising Pennsylvania, Southern New Jersey, Delaware, Maryland, Virginia, West Virginia and the District of Columbia." Bob, you sound like just the fellow to give a hand in the Pennsylvania area on our 40th reunion class gift. I'm sure you can carry gold on both shoulders. Wait until **Austin Kelly** reads about you! . . . A note from **Bill Lowell** states, "Dear George: As you may have heard, I had to miss the 1926 Reunion Arrangements Committee meeting this spring because Gertrude and I were lucky enough to get three weeks in Europe. We did some touring of Southern Europe in a rented, white Opel and were happy to find that Dave Shepard's "tiger" is very much in evidence. Sincerely, Bill." Bill enclosed a Kodacolor print of one of Dave's tigers speaking German. We saw Bill's picture in the paper a couple of days ago; he's been elected National President of the Illuminating Engineering Society. . . . Here is a letter from **George Makaroff** which came as a surprise because we usually hear from him only at Yuletide. "Dear George: I have just about retired from my work in sound recording (thru Local 52 I.A.T.S.E. of New York. And how many union men are there amongst the 26's?) and in another five months will join the difficult Eden of the retired men. I say difficult because what I face even now does not satisfy me. Which brings me to the questions of enjoyment of nature and conservation. I have been an active hiker and outdoor man all my life . . . and I wonder if there are any classmates with interests in the same blessed field—good for the soul, the body and the retired man. My favorite areas are the Adirondacks and naturally the local Ramapos. Do I hear any voices? I could even provide a running commentary in Russian, if anyone coming along is interested. In addition I could, within reason, improve their chances to add more honorable years to already distinguished spans of life. After all 'tis almost time to give an accounting for the "talent" received and having returned it all, live by the rule of the late Pope John 'obediens in pacem.' Best to the class, and may your hikes be long and happy ones. Sincerely, George." I always get a

kick out of **George Makaroff's** letters; the content and the flare is so unusual. Sounds to me as though **Dick Pough**, who has dedicated his entire life to conservation, has a ready recruit in George. Having used up our allotted space, let me close with this one thought. This is the year of our fortieth, our most important reunion. We have one of the noblest objectives ever set by a class. **Austin Kelly** has taken on a big job and he needs help from every one of us. Let's give it to him. Now for the turkey and a pleasant Thanksgiving and Cheerio until December.—**George W. Smith**, Secretary, E. I. DuPont de Nemours & Co., Inc., 140 Federal Street, Boston, Mass.

'27

During the summer the decision was taken to hold our Fortieth Reunion at Bald Peak Colony Club, Melvin, N.H. On Alumni Day last June, those responsible for deciding were definitely in favor of Bald Peak and the reservations were made for June 9, 10, and 11, 1967. As to the question of wives, the class of 1926 has voted to include them, after 39 years of stag reunions. A well-known classmate of ours writes: "By 1967 I'll need a good mate with me to remind me to 'fix your tie,' 'there's a spot on your suit.'"

Early in the summer, the good word was received of the appointment of **Keneth Smith** as Dean of the School of Architecture of Columbia University. Concurrently, the school was reorganized to meet the expanding national and worldwide need for urban planners and architectural technologists. Ken has been with Columbia since 1935 and has been Acting Dean since 1963. Another dean in our class, **P. C. Eaton**, Dean of Students at California Institute of Technology, wrote to Ken as follows: "There I am reading the New York Times after lunch today and I see this picture of an old coot. I'm about to pass on to something interesting like steamship arrivals when I get an uneasy compulsion to look again: it's you and they've made you a full Dean with no strings and carte blanche. Congratulations." And so say all of us. . . . Late in the summer the press carried equally good news of the election of **Russ Westerhoff** to the presidency of Ford, Bacon & Davis. Russ stayed at Tech that extra year for his M.S. in Civil Engineering and then went to the organization he now heads. Russ' life has been full. He has found time for strenuous activity in community, professional, and M.I.T. affairs (Past President of the M.I.T. Club of Northern New Jersey). His design and construction work has included alcohol butadiene and styrene plants, large steam electric generating stations, multimillion dollar bakeries. He recently directed studies for important phosphate fertilizer facilities. I know, Russ, that you have heard directly from many of the classmates, and here the rest of us say congratulations. . . . **Bud Fisher** is doing yeoman's service in directing the push for a 40th-reunion class gift of which we can all be proud. This is not a one-shot proposition, as all that we give

between now and June, 1967, is credited to the gift as well as all given since 1962. So Bud has his work cut out for him for the next two years. Our goal is \$500,000. Our latest total is close to \$230,000. Our participation last year, however, was 30%. Still a lot of counties not heard from!

Word of **Jim Lyles** continues good. He is at his summer home in Canaan, Conn., right now and will return to Bronxville in the fall. He has been a regular attendee at First Boston's executive committee meetings. . . . **Larry Day** and **Bill Payne** had a visit at Larry's home in Fairfield, Conn. . . . **Adelbert Billings** has completed 37 years with Kelly-Springfield Tire and is assistant development manager of their Cumberland, Md., plant. . . . **Miss Sara Scudder** has retired as senior bacteriologist from City Hospital, Queens, New York City, after 44 years of service in the Health and Hospital Departments of the city. Miss Scudder is a regular attendee at Alumni Day. . . . **John Frederick Brown** of Boston is the year-old grandson of our classmate **William M. Crane, Jr.**, and the great-great-grandson of **John D. Runkle**, the second President of M.I.T. Bill continues with American Brass at Waterbury, Conn. . . . **William J. Rudge** has retired from General Electric Company, where he was manager of the distribution protection department; he finishes 38 years with G.E. Many honors came to Bill during this time. He has the rank of fellow in the Institute of Electrical and Electronic Engineers and was elected to the Duke University chapter of Tau Beta Pi fraternity in 1954 as an "eminent engineer." . . . We have belatedly learned of the retirement of **John R. Kelley** in June, 1964, from the Department of Water and Power, Los Angeles, Calif. He was engineer of underground distribution—Power System. This however did not bring an end to John's working career as he is now president of the Kelley Mortgage Company, Newport Beach, Calif. . . . It is interesting to see each year which of the items of class news are used in M.I.T.'s brochure "MIT Alumni Make News." This time it is **Edward D. Stone's** speech on our moral obligation to leave a beautiful heritage to future generations, and the U.S. Public Health Service distinguished service medal award to **Vernon G. MacKenzie**, for his work in environmental health. . . . The 1927 attendance at Alumni Day was good. The following were there, most with their wives: **Dwight Arnold**, **Bob Bigelow**, **John Boyle**, **Joe Burley**, **Ed Chase**, **Harold Edgerton**, **Charles Ellis**, **James Forbes**, **Harold Heins**, **Frank Marcucella**, **Hector Moineau**, **Miss Sara Scudder**, **Bill Taggart**, **Bob Wise**, **Glenn Jackson** and **Jacob Mark**. . . . **Harold E. Edgerton** is the author of an article in the July issue of The Professional Photographer entitled "Photographic Guide Factor." . . . **Erik Hoffman**, who was with Standard of New Jersey in Mexico City until his retirement last year, showed up here in Mystic last spring to visit Rand Jones, Class of '30. Unfortunately I was away but I thought that Erik was going to carry out his threat to settle somewhere on the nearby coast. Now a new address has been received: La

Cabaneta, Mallorca, Spain. I am writing to see whether this is permanent. . . . **Sumner Gross** has moved from New York City to 5 Leonard Rd. Peabody; **Samuel Auchincloss** from Dedham, Mass., to Mechanicsburg, Pa., RD #3; **William F. Bingham** from Omaha to 1835 SE 32nd Place, Portland, Oregon; **John Pinkerton** from Venezuela to 201 Woodland Ave., Daytona Beach, Fla.; **Carl Peterson** from Puerto Rico to 33 Cranch St., Weymouth, Mass.; **Andrew Anderson, Jr.**, from Pompano Beach, Fla. to 24 Lee Garden Apts. Bristol, Va.; **Professor Harriet W. Allen** from Nashua, N.H. to Keene State College, Keene, N.H.; **Winfred Witham** from Chicago to 361 Campbell Ave., Redlands, Calif.

John C. Parker says that he is looking forward to the reunion and has offered to show his unusual slide collection of old New England days, happenings, and Americana. The research into ghost-houses of New England has won national recognition. . . . **Frank Mesker** is another who sends word of his hope to be at the reunion, and says he is going to get his old friends there, too. . . . It is with regret that we learned of the death of **Edson E. Aldrich**. He passed away on May 21, 1965, as the result of a stroke sustained two weeks before. "Mac" came to M.I.T. from the University of Maine in his sophomore year and got his degree in Electrical Engineering. He had a life-time career with Bell Telephone Laboratories; his last assignment was in Whippany, N.J.—**Joseph S. Harris**, Secretary, Masons Island, Mystic, Conn. 06355

'28

As we write these class notes in mid September, we feel that we should devote this column to the memory of our class leader, **Ralph Joep**, who passed on in mid July. We could say briefly that we loved and respected the man and miss him dearly, or we can present our respects in the eulogy of a memorial service. But we know how much you appreciate that an easy flow of words is deterred by a heavy emotional reaction.

As we remember Ralph and his life with us as an undergraduate and during our mature years, we can envisage many different experiences. Each of us must retain varied pictures. Remember how active he was in sophomore battles during our freshman year? Don't you see Ralph strolling in the great court between classes, always walking with an unhurried pace, but always directly toward a class, or toward an appointment, or toward a definite place for a definite purpose? You, too, probably see him dressed in a short, white jacket in Walker dining hall, waiting on table, so to speak. He worked hard for Technique and applied himself seriously to crew activities at the boat house. You visited with him in the dormitories and accompanied him on fraternity shindigs. Perhaps your mind reverts to the summer of 1925 and summer camp at East Machias during "stream gauging" and "topographical surveying." We were

editor of "The Benchmark" and Ralph was business manager; and after camp lights were extinguished, we sat in our "office" and talked of the past when he worked as a bellhop in the Congress Square Hotel in Portland and planned his future at college—always M.I.T.

Ralph worked hard from the time he was a kid, then through high school, and four years with us at Cambridge. Always steadily; he never seemed to hurry, he always kept going. And that's the way he died, crossing Forty Second Street at Vanderbilt Avenue, moving toward a dinner engagement to discuss plans for our Fortieth Reunion and our Fortieth class gift.

On July fourteenth Jim Killian wrote a complete and sensitive obituary that was sent to members of the faculty and to class members. We cannot add to that or improve upon it. However, we sensed a heavy emotional strain beneath the smooth flow of words. In this funny world it's not good manners to weep and wail. We are scientists, teachers and engineers, not poets. But the grief was there just as there is grief in our hearts.

Your classmates, **Jim Donovan**, **Charles Worthen** and your Secretary met with Florence Joep at her home early in September to form preliminary plans for our Fortieth Reunion. Also present was **Abe Woolf**, whom Ralph had suggested as reunion chairman, and who, on this day, accepted the nomination after some hesitation. Florence served a delightful luncheon and Jim acted as master of ceremonies.

Perhaps it was because we were in the Joep home, or maybe because Florence was active in our discussions, or because Jim was closely associated with Ralph in business, we all felt that Ralph was with us. Yes, it sounds silly, but that's the way it was. Florence gave us the list of class members whom Ralph had selected as possible active participants in a drive for our fortieth class gift. Jim had discussed detailed plans with Ralph. Abe was ready and willing to make this "the best reunion ever," and the rest of us pledged a determined allegiance. There was something missing. After an hour we realized that we had no leadership. There was something missing all right; we missed Ralph and his gentle, smiling, persuasive management.

We'll have our Fortieth Reunion under capable management and our class gift will compare favorably with those of the past, if determined works mean success, but now it will all be a memorial to Ralph Joep. How he had looked forward to setting a record for a fortieth-year gift. That's the kind of guy he was.—**Hermon S. Swartz**, Secretary, Construction Publishing Co., Inc., 27 Muzzey St., Lexington, Mass. 02173; **James Donovan**, Treasurer, Artisan Industries Inc., 73 Pond St., Waltham, Mass. 02154.

'29

We resume our class reporting for another season by catching up on miscellaneous items that have come in since our

last Review and news of Class Day, June 14. The New England mist that day was heavy enough to drip off the edges of the tents in the great court and the temperature was 55, but those who came in light clothes expecting typical Class Day weather braved it all, nevertheless. Fourteen from our class were there—Frank and Mary Mead, Joan and Wally Gale, Bill and Doris Baumrucker are the "regulars." Olive and Gordon Williams were in from Scarsdale and others in that area should take courage for another year because Gordon said it was now only 3½ hours from Scarsdale to Boston. Incidentally, Gordon has promised us something from his travels, which reach to almost every corner of the world, in his capacity as a consulting engineer. Virgil McDaniel found the Newark shuttle even more convenient for getting back to his new home in short Hills, N.J. Mr. and Mrs. Charles R. Greene had driven down this year, as they did last, from Canaan, N.H., and Ruth Dean of Wellesley Hills was on hand. Listed as registrants, although we didn't happen to see them, were Kenneth C. Blanchard. Mr. and Mrs. Newell Mitchell, and Paul Gill. . . . We learned that **Ted Malmstrom** was coming along after his serious automobile accident. I understand that he received a note from **Elmer Skonberg** when news of Ted's accident first appeared in these class notes. A very nice long note from Florence Malmstrom, April 20, brought news that Ted was at the Liberty Mutual Insurance Company Rehabilitation Center where he was getting physical and occupational therapy. Good luck to you, Ted, and we hope that you have made wonderful progress in the months since we last heard.

We have a news release from Harrison, N.J., dated May 25, 1965, that **Eric Bianchi** has been appointed Assistant Vice-president of Planning for Worthington Corporation, and his new home address is now 10 Euclid Avenue, Summit, N.J. . . . A news release from Youngstown, Ohio, announces the appointment of **David Graham**, New York City, as one of four new directors of The General Fireproofing Company. David is a general partner of Hornblower & Weeks-Hemp-hill Noyes, investment brokers, and formerly a director and financial vice-president of the Standard Oil Company (Indiana).

Had a note, late July, from **Hunter Rouse**, apropos of the trip that my wife and I made to Yugoslavia in May, saying, "Hope you enjoyed Yugoslavia—or did you drive?" We did drive, both along the coastline, where they have done a superb job of carving a new highway out of the rock (Marshall Tito's highway) and also inland, where the roads were all that Hunter implies. It was a wonderful trip but it seems like ancient history now, especially in view of the fact that Hunter says, "I'm off to Siberia for a short time . . ." Won't a report of his trip make interesting class news!

We were saddened to learn of the deaths of three of our classmates. **George Cudhea** of Bellevue, Wash., passed away July 16, 1965; and **Earl Glen** of Chevy Chase, Md., on March 11, 1965. A news release from Walter Reed Army Medical

Center reports the death of Brigadier General **Vincent Joseph Esposito** on June 10. He was a professor and head of the Department of Art and Engineering at the U. S. Military Academy at West Point for many years; he retired in 1963.

Mrs. **Herbert Walther** (Helen) of Blairstown, New Jersey, sends news for the class secretary as follows: "Eldest daughter Sally (Mrs. L. M. Chamberlain of Columbus, Ohio) now has five children. Son, Eric, who has just received his Ph.D. from Yale, is married to the former Zsuzsa Makkai of Hungary and they have a baby girl. He is to teach Philosophy at the University of Hawaii next year. Daughter Mary (Mrs. J. F. K. Ashby of London, England) has a brand-new baby girl. Daughter Debby has just finished her sophomore year at Vassar and Jill is to enter Vassar in the fall."

This summer we received one lone "questionnaire reply" from **Ace Vernon** of Centerville, Del., for which we send our thanks. Ace is associate director of Engineering, Technical & Materials Research, E. I. DuPont de Nemours in Wilmington, with whom he has been associated since graduation in the field of research, with excursions into operational plant engineering and in design. His civic activities included founding (with others) and nurturing two educational institutions; one, aimed at highway safety, revolved around drag racing enthusiasts; the other is a professional astronomical observatory. Among his many hobbies, manual crafts, scientific philosophy, and horticulture are presently in front.

We are just back from the M.I.T. Alumni Seminar, at which the Class of '29 was represented by the Bill Baumruckers, the Virgil McDaniels and the Riches. It was a mind-stretching review of science and the future.

Kindest regards to all.—**John P. Rich**, P.O. Box 503, Nashua, N.H.

'30

My apologies for the lack of 1930 Notes in the July issue. The reason—a monumental log jam at the office at about the time they were due. Since this is my first "miss" in 45 issues, perhaps you will forgive me. . . . The 35th Reunion at Oyster Harbors proved to be as enjoyable as the advance publicity predicted. Some 43 classmates attended, of whom 33 were accompanied by their wives. Children attending at least one event included Lorinda Burling, Kathy Cooper, Mark, Maurice, Jr. and Scott Herbert, Ken Kimberlin, Bob Lytle, Jr., Mary Lytle Stokes, and Stewart Wilson. Although the weather was ambiguous at times, it never seriously interfered with the scheduled activities. As usual, Friday evening was devoted to a showing of the pictures of past reunions. Our expanding film library now includes shots of a substantial portion of our classmates and provides entertaining contrasts between "then" and "now." On Saturday the athletes among us availed themselves of the fine sports facilities at the Club, while for the more sedentary (and perhaps

more sensible) a bus trip was arranged to local points of interest including the Sandwich Glass Museum, a candle factory and the "Kennedy Compound" at Hyannis. The banquet Saturday evening was emceed with a light but sure touch by president **Joe Harrington**. The customary statistical extremes were duly noted. Honors for having come the furthest distance to the reunion went to **Blanche and Jean Kresser** of San Francisco. In respect to number of children there was a 4-way tie between the **George Lawsons**, the **Jack Lathams**, the **Tom O'Connors** and the **Hank Bates** with four each. **Maryann and Yicka Herbert**, with an 8-year-old son, had little competition for the couple with the youngest child. Honors in the grandchildren department went to **Eleanor and Frank Nettleton**, who have six. . . .

George Wadsworth, our nominating committee chairman, after regaling us with a choice supply of anecdotes accumulated over the past five years, proposed the following slate of officers, which was elected with scarcely a dissenting vote: **Dick Wilson**, President; **Bob Lytle**, Vice-president; **Ed Kingsley**, Treasurer; yours truly, Secretary; and **Greg Smith**, Finance Chairman. So far as I can recall, the latter post is a new one for our class and perhaps deserves a word of explanation. As many of you know, it is customary for the 40-year class to announce a substantial gift to the Institute at the Alumni Day luncheon each year. This gift is made up of all donations to M.I.T. by members of the class, both within and outside the Alumni Fund, over the preceding 5-year period. In recent years these gifts have amounted to several hundred thousand dollars per class. The collection of these impressive sums is the responsibility of the class Finance Chairman. Those of you who have reviewed the last annual report of the Alumni Fund and noted the lowly status of the class of 1930 therein will recognize that Greg is going to need a lot of support and cooperation if our class is to make a respectable showing on Alumni Day 1970. . . . After the banquet and post-prandial business meeting we adjourned to the Club's recreation room to hear Prof. Hans-Lukas Teuber, who is head of the Institute's relatively new Psychology Department, tell us of the many interesting research projects being carried on in his department. Prof. Teuber described illustrative experiments being carried out in each of three major areas: the relation between brain and behavior, the relation between perception and learning and the interaction of individuals in groups. . . . The Sunday highlight was the clambake, which because of an ominous cloud formation was held indoors this year. However, this minor contretemps produced no perceptible diminution in the enthusiasm with which the seafood was attacked. The festivities were enlivened by **Reg Tarr's** presentation of the golf awards with appropriate comments. Once again, **Hank Bates** won the low gross, this time with an 87. **Dick Wilson** and **Yicka Herbert** shared the "kickers" honors with 78 and 74, respectively. . . . Roughly a third of

those present at Oyster Harbors took advantage of the offer of free accommodations in the M.I.T. dormitories and stayed over for Alumni Day on Monday. They were joined by **Fred Holt**, **Bob McCarron** and **Max Wheildon**, who were unable to attend the reunion. The Alumni Day program was fully reported in the July Review. However, I cannot forbear to comment on the logistical efficiency with which 1600 people were served lobster Newberg and chicken-a-la-king in the Great Court at noon. The luncheon was a truly impressive performance. . . . Letters and telegrams of regret were received from about 20 classmates who were unable to attend the reunion. Items gleaned from these communications will be reported next month. Changes of address; **Joseph W. Devorss, Jr.**, 6321 Waterbury Drive, Falls Church, Virginia; **Louis Harmantas**, Weather Bureau Airport Station, Hangar 11, John F. Kennedy International Airport, Jamaica, N. Y. 11430; **Warwick R. Harwood**, International Harwood Co., 42-42 80th Street, Elmhurst, N.Y. 11373; **Roy W. Ide, Jr.**, 202 West Durst Avenue, Greenwood, South Carolina 29646; **L. Sigfred Linderth, Jr.**, 168 East Hamilton Lane, Battle Creek, Michigan 49015; **Harry W. Poole**, 1201 Mottrom Drive, McLean, Virginia 22101; **Charles R. Prichard, Jr.**, Gas Service Inc., P. O. Box 807, Nashua, New Hampshire 03060; **Col. Angelo M. Ricciardelli**, Systems Sciences Corp., 5718 Columbia Pike, Falls Church, Virginia 22041; **Robert B. Rypinski**, T. R. W. Space Tech Labs., 1 Space Park, Redondo Beach, California 90277; **Charles A. Smith, Jr.**, 273 Concorc Street, Framingham, Massachusetts 01701; **Russell Stetson**, 47 Norton Drive, Norwood, Massachusetts 02062. . . . **Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, New York.

'31

Although they were received too late to be included in the last issue of the Technology Review, two things have happened recently that bring cheer to a Class Secretary's heart. A nice long letter arrived from **Peter Loewe**, and I made my first ham radio contact with one of our classmates, **Fred Elser** (W6FB). Peter Loewe's letter is so full of interesting information that I'm quoting it in full. He wrote, "I am indebted to **Larry Barnard** for your address. He tells me that you are looking for news from the former inmates of the class of '31 of M.I.T., and suggests that I drop you a line. (Thanks a million, Larry.) My only ulterior motive is that maybe someone might drop me a line and re-establish a long forgotten line of communications. When I left M.I.T., you may vaguely recall that there was a Depression on. I went to Oldsmobile for a year, then to Chrysler for another year, both as engine designer. After that I was convinced that I was not a good "Big Company Man" and went to a Wilmington, Del., outfit as an engineer for a couple of years. When they decided that I wasn't worth what I thought I should

be getting, I quit and went back to the Middle West. There followed a stint as chief development engineer for Logansport Machine; then, a short tenure as President of one of their subsidiaries, now defunct. After that, I decided "Nuts to working for someone else," and I started an engineering consulting practice in Chicago. I ran that quite successfully until the end of the war spelled finis to small enterprises such as mine; besides, I wanted to get into manufacturing. So I started a corporation that made small electric motors and ran it for a number of years until I sold it to somebody else. Then followed a ten-year tenure as originator and Executive Vice-president of the American branch of a large British electrical firm. At the end of that time, I was fed up with the constant traveling, both domestic and abroad; therefore I did not kick when two years ago they offered to buy out my contract, since I was earning more money than the chairman of the board. Since that time I have started another company, which is in the miniature high-pressure compressor business. I have now left the red-ink stage, and someday I may actually pay myself a salary equivalent to that of the office boy. So much for my so-called career; making a living sounds more like it. Family-wise, I am still married to the same girl; after 33 years I don't dare to trade! Have a married daughter, no grandchildren, I hope. For my amusement I fly rented planes all over the country; as long as I can pass my physicals, I'll keep it up, to my wife's utter disgust and frustration. I've gotten my share of kudos, which we will cover this time with the mantle of oblivion." A few letters back, I mentioned that I have been hoping for news of our classmates by ham radio and mentioned my call, WA1ASM. Recently, while I was talking with a friend in Yucca Valley, California, another station, W6FB, called in to say hello. It turned out to be my old friend, Fred Elser, and what a pleasure it was. Fred has been living in Palm Springs, California, for about five years, where his address is 1189 Tamarisk Road (Phone 324-9452). He is retired but says he keeps active in church and other work. His youngest daughter, Margaret Elaine, graduated from UCLA, is married, and has two sons. She and her husband live in Reno, Nevada. Their oldest daughter, Janet, is a professional librarian and is working in Honolulu. Their boy, Fred Jr., graduated from the University of Georgia this past June. Fred and I are hoping to get together by ham radio frequently in the future. During the conversation he also mentioned that he had seen Earl Cullum recently.—**Edwin S. Worden, Jr.**, Secretary, 35 Minute Man Hill, Westport, Conn.; **Gordon A. Speedie**, Assistant Secretary, 90 Falmouth Road, Arlington, Mass. 02174

'32

Your Secretary has been overwhelmed with notes provided during the summer. These are the fall-out from an Alumni

Office mailing which also included a self-addressed return envelope. **William I. Stieglitz**, 274 West Neck Road, Huntington, N.Y., writes: "This winter I took the plunge and opened a consulting practice in Aviation Safety and Reliability and have since set up the firm of William I. Stieglitz Associates. This comes after over 20 years at Republic Aviation where I was Manager, Design Safety and Reliability Division". . . . **Alwin B. Newton**, 136 Shelbourne Drive, York, Pa., writes: "No significant changes—still Vice-president and Director of Research for York Division, Borg-Warner Corporation. Just received my 163rd patent. Big push right now is thermoelectric cooling and heating. Two more technical papers on it in '65."

Henry Rockwood writes: "Effective February, 1965, I transferred to U.S. Weather Bureau Regional Office, J.F.K. International Airport, as Head, Data Acquisition Branch, after 18 years of Pittsburgh, as Meteorologist in charge of the Weather Bureau Office there. One son, Henry III, now living in Pittsburgh and working for U.S. Steel, American Bridge Division; other son, David Lawrence, on leave of absence 64-65 while a Junior of Harvard College, spent the year working his way around Europe." . . . **Frederick B. Hoyle**, 2464 Meadowlark Drive, S.E., Sierra Vista, Ariz., writes: "I am employed as Department of Army civilian at Fort Huachuca, Ariz., since October 1954, in development and testing of electronic equipment." . . . **Col. L. W. Glowa**, 860 Jerry's Drive, Ellicott City, Md., writes: "Since my retirement from the U.S. Air Force, I have been with the Department of Defense at Fort George G. Meade, Maryland." . . . **Col. (Ret.) Arthur L. Mackusick**, 745 Carambole Drive, So. Merritt Est., Merritt Isle, Fla., writes: "Since retiring from the Army in 1962, settled in Florida, am "engineering" with Pan-American Guided Missile Range. My wife Betty is active in music and art, son Larry an Army captain with wife and three youngsters, in Germany. Daughter Mary married (one youngster), teaching school, her husband in law school at U. of Florida. Hope to see many of you at our 35th Reunion. Florida is 'the' place to live!"

Charles B. Bradley, 871 Old Orchard Road, Campbell, Calif., writes: "Retired December 1, 1963. Happily vegetating in sunny California." . . . **Herbert L. King, Jr.**, Apt. 51-B, Troy Village, Springfield, N.J., writes: "Retired as totally disabled September 1, 1963—larendectomy. However, due to freedom from all taxes, am not doing too bad. Hi, Robert Semple and the rest of you!" . . . **Howard Lenderking** Course XV, writes that he has "passed several milestones in the last year." As a Senior Industrial Engineer he has been with Du Pont for 25 years, the last 15 years spent at Martinsville, Va., in Nylon. His son, David, was graduated from Virginia Polytechnic, Class of '64 in electrical engineering, and is now with I.B.M. He married and now lives in Lexington, Ky. His daughter, Margaret, a graduate of Wooster College, attended Duke University. She also married this last year. Her husband, David

Hale, is teaching English at the University of Cincinnati. Howard and his wife Edna took a flying trip to Europe with the Society for the Advancement of Management. It was mostly a sightseeing tour with only a short session in Amsterdam and one in London with other management people. He recommends highly such a trip for those who travel with their eyes open. He sends best wishes to his fellow graduates.

Chamras Chayabongse, Course XI, has spent six months in Washington attending a course in economic development at the World Bank. He wrote in March that "we leave for Rome, Italy, for the last of our field trips in the southern part of Italy. We will be in Italy for about two weeks, after which I will proceed to Yugoslavia as guest of the Central Bank of Yugoslavia, visiting their economic development projects in various parts of the country for one week. I will then return to Thailand, stopping in Istanbul and Cairo to visit some old friends for a few days." Before he left Washington, Chamras wrote: "About 10 days ago Phil Coleman, my classmate at Williston and M.I.T. ('33) and his wife, Elinor, drove all the way down from Bristol, Conn., to visit my wife and me in Washington. I had not seen him for over 30 years, but he still looks about the same, and hale and hearty as ever. We had a wonderful time talking about the good old days." Presently, Chamras is deputy secretary general, National Economic Development Board, Office of the Prime Minister, Government of Thailand: Concurrently, he is professor of sanitary engineering, Graduate School of Public Health, University of Medical Sciences, Bangkok.

I purloined the above from the Williston Academy alumni publication, I am sure they will forgive me since it is of equal interest to classmates at M.I.T.

The following deaths occurred during the summer. **Max Daytz**, Course IX-B, of 49 Fairhaven Road, Newton Center, Mass., died on June 25, 1965, at the age of 54. He was the owner of the Daytz Theatres Company, 260 Tremont Street, Boston, one of the largest New England buying and booking services for motion picture exhibitors. A native of New York City, he was a graduate of M.I.T. in 1932. He was associated with several engineering firms from 1932 to 1945. From 1945 to 1951 he was associated with Warner Brothers film company. He formed the Daytz Company in 1951. He was a member of the Variety Clubs of Boston and New England. He leaves his wife, Ruth (Glass), a daughter Hollace of Newton Center, a sister, Miss Molly Daytz of Brighton, and two brothers, Alexander R. of West Hollywood, Calif., and Albert R. of Brookline.

Matthew T. Mayes, 2d, Course VI, of 66 Alexander Drive, Meriden, Conn., died on May 25, 1965, at the age of 55. He was secretary and general counsel for the International Silver Company. . . . We also have long delayed notification of the death of **Henry D. Grimes**, of Lawrence, Mass., on December 27, 1962.

There has been much activity of many classmates reported in the press, but I

will have to pass that on next month. In the meanwhile, I am hunting for a surplus supply of self-addressed envelopes with which, I'll bet, if I mailed out selectively (by sticking pins through the Alumni Register), I would get some more personal responses from you fellows.—**Elwood W. Schafer**, Secretary, Room 13-2145, M.I.T., Cambridge, Mass. 02139.

'33

With these immortal notes the four-month vacation for Class Secretaries comes to an end. If all classes have an accumulation such as collected for me, The Review will be much bigger than usual. Late in June I received a page of gossip from **Ing Madsen**, Editor of the Iron and Steel Engineer magazine. Ing got a lot of juicy items into this one page, and I can assure you that it was the kind of letter a secretary loves. I now quote Ing. While visiting Quebec, Ing learned that **Bob Winters** had been made President of Atlas Steels, of Tracy, P.Q. Apparently Atlas is a division of Rio Algom or Rio Tinto. Atlas, it appears, is the one big producer of stainless steels in Canada. Well, Bob would not be in on it unless it were tops. In the Pittsburgh area we find **Norm Spofford**, Course I, with the Westinghouse Nuclear at Bettis Field; **Carrol Newton** (Col. to you chaps! Remember the 30th?) is with Swindell-Dressler. This firm is one of the largest in the consulting engineering field and is heavily involved in the construction end of the steel industry. Our own **Al Roscher**, Course II, is with Pittsburgh Plate Glass; **Bob Wellwood** is with McConway & Torley Corporation; **Art Mason** sells insurance for Northwestern Mutual Life; **Max Millard** is vice-president of U.S. Steel's International. Ing's letter was dated June 22. On June 25, 1965, Ing was fatally injured in an automobile accident in Council Bluffs, Iowa. Mrs. Madsen was also injured and passed away the next day; the couple leaves five children, four of whom were with them in their car at the time of the accident. All four were hospitalized and will recover. These four children are between the ages of 12 years (the twin boys) and 22 (the elder girl). The fifth child, a son, is with the Army in Germany. I know that the whole class joins me in extending our deepest sympathy to these five kids, who have lost both their parents. I am indebted to Col. Newton; **Henry Kiley**, Prof. W. M. Laird of Pittsburgh University, M.I.T. Class of '43; Lillian Koerber, Ing's secretary; and **Fred Lehmann** for informing us of this tragedy. I personally was so pleased to hear from Henry Kiley, who was Ing's Medford, Mass., buddy long before either was a student at the Institute, and I do thank Henry for being so thoughtful as to write me in long hand concerning his and my friend. I knew Ing only casually until the 30th Reunion, but visited long and well with him on that occasion. Ing's letter mentioned Col. Newton and the hats in his letter to me three days before his passing. Ing must have been very, very popu-

lar and well loved, as no one in my experience has ever been written about posthumously as was he, by his countless friends in the steel business and elsewhere. We will miss Ing.

Before it becomes too late, mention of Alumni Day seems to be in order. I do not know what the following did during the day, but they were present at cocktails and dinner: Ed Atkinson, Bob Crane, Clarence Farr, Tom Galvin, Ferd Johnson, John Long, Dick Morse, Gene Sullivan, Dick Zimpel, all of these men complete with their faithful wives. Most of these men and wives attend all of the Alumni Dinners. Henderson and Leona did not attend this year, as they usually do, as another function interfered. Belatedly we hear that Ed Simpson, Irving Schell and W. A. Kilbourn also attended Alumni Day. It is a great day, and no loyal alumnus should deprive himself of enjoying it. I almost forgot Westy Westaway, and all because he was not listed under the benedicts; am a tiny bit sorry, Westy. How come you never drive 48 miles to Exeter?

From the Alumni Office we have the following information on classmen: **Roger Putney** now has two jobs with the Quincy Yard of General Dynamics: chief production engineer, and the same job at Groton (electric boat). This really is two jobs although it sounds as though it might be the same one in two places. . . . On **Ed Simpson**, and, aside from his attending on Alumni Day, nothing about Ed himself, but a lot on the family. Ed, Jr., married June, 1964, now an architectural student at Harvard Graduate School; daughter Beryl married April, 1964 now working on her doctorate in biology at Harvard; daughter Joan at William and Mary, pursuing marine biology. More later, says Ed. . . . **Rod Chipp** has something to offer this time, as in June his good wife, Mrs. Beatrice Hicks Chipp, became the first woman ever to receive an honorary degree in Engineering from Rensselaer Polytechnic Institute. Son Robert was aboard the U.S.S. Intrepid, which picked up the first Gemini shot. . . . From **J. Dyer Potter, Jr.**, we learn that he has been 32 years with the Conn. State Highway Department and has retired from the U.S. Army Corps of Engineers Reserve as a Lt. Colonel, after 21 years with the Corps; the Potters' hobby is breeding and showing Cocker Spaniels at Sea Mist Kennels, which has had five champions in the last nine years. . . . **Prof. Frank Gilmore** of Cornell Graduate School of Business has, during the last year, been conducting seminars for business executives in Italy, Japan, Trinidad, and Venezuela. When not so engaged, he teaches business policy and general management to second-year men at Ithaca and also directs the Cornell Executive Program. I often wonder what these characters do with the other hand. . . . Though mentioned before, **Ralph Garret** has been named State Fire Marshall by Governor Volpe of Massachusetts. . . . **Dr. Base Parker**, Professor of Biology at Lehigh University, was honored after 25 years at Lehigh by being welcomed into Lehigh's

25-year Service Circle at the Faculty Dinner festivities. Lehigh's press release was full and complete in giving Basil's record in biology since his 1933 graduation from the Institute. However, the eulogy is far too long to be summarized here. Interested parties may write the Secretary. . . . Though I mentioned this before, it is still worth repeat: **Prof. Gilliland** of the Institute's Department of Chemical Engineering has been elected to the National Academy of Engineering, and was a recipient of the Kirkpatrick Award. . . . **Dr. Athelstan Spilhaus**, Dean of the University of Minnesota's school of Technology, has a press mention which concerns Dr. Spilhaus's connection with the comparatively new science of oceanography. Your Scribe is a Fellow (one step more expensive than plain dues payer) of the Oceanographic Society, and Dr. Spilhaus is a member of its Board of Trustees. This society is a non-profit organization devoted to the exploitation of the marine sciences for the betterment of mankind. Dr. Spilhaus recently spoke to 100 industrialists aboard the S. S. Constitution on a fantasy connected with these sciences, which, briefly, envisions a whole city at the shore, both above and under water, devoted to a multi-million-dollar university, laboratory, experimental harbor, tourist attraction, and playground, all rolled into one. Anyone interested may write to the Oceanographic Society, Miami, Florida, for information on how Dr. Spilhaus held forth. It appears that the good Doctor and his audience of 100 had a fine luncheon, but not one particle of it came from the sea, which surely must have been an oversight.

Neither least nor last, I do believe that we may now settle the Aldridge question which was, of course, a question only in my mind. See several past issues of this journal for background. The answer is that there is and was no chicanery involved; Fred or his family merely took advantage of their or his legal rights and changed the family name. I get this not only from **Fred Aldridge**, but **Olavi Viita**. Was Viita the other one from Chester, Mass.? He must have been. Anyway, they both entered as Course II men, but Aldridge fell by the wayside or defaulted, and wound up in Biology and Public Health, at which trade he has been working ever since. I do not remember how **Werner Bachli** got into the act, but no matter. We are straightened out.

We have a few personal notes from some of the faithful. I have already mentioned getting a note from Henry Kiley. We have, also, one from Beau Whitton, short but clear. These fellows just do not care to put it in writing. Beau is one of our many vice-presidents (why do we have so many loafers for officers?), and he writes a note attaching a clipping from the New York Times concerning Hatem Mostafa, a son of **Niazi Mostafa** of Cairo, Egypt. Beau asks if this young Mostafa is related to our own Musty, and I say "yes," positively. "Muscles" Musty had this young man and his daughter and wife with him at the 25th, Beau. You must have met them all. We all thought

them nice folks. Young Musty is also an M.I.T. grad, and the paper says that he has become engaged to Miss Janet Barton of Auburn, Calif. She is a Wellesley graduate of 1962. It also says here that Hatem Mostafa is connected with Kaiser Engineers Division of Kaiser Industries. Please note that I have kept Beau on the background a bit. Beau and Daphne went on a Great Lakes cruise, and found the New York times, as otherwise he never would have picked up the Mostafa bit. Good work, Beau. We need a few more vice-presidents who can write even a short note to Ye Scribe. . . . Earlier I received my first communication from a 1933 girl, **Margaret Kelly (Mrs.) Geddes**, and bless her little heart. She sent, for transcription, love to all Course IV, and also tells us that she and Bro Geddes were recently national champions in the Raven Sailing Class. Also, she is a great-aunt, which, as I think of it, ought to rate a geranium. However, she tells me that **Polly Varney Marshall, IV, '33**, is a grandmother four times over. But will Polly drop me a line? . . . Now, a real nice note, though plaintive, from **Bill Klee**, Damascus Tube of Warren, Ohio, the only city in the world that I know of where one may ask for a Manhattan and the gal asks, sweet or dry? Bill explains why he attended neither the 25th nor the 30th. In '53 Bill was in a hospital in Boston getting a disc or discs shoved back in place, and in '58 he had to attend his daughter's wedding. Well, I expect that we will have to accept these excuses, but, William, it just must not happen again, as we now have it on record that it was your youngest daughter's wedding. By the way, if you ever happen to see Raymond Hughes at the Country Club or wherever, maybe you can find more news from him about me. He lives right smack up against the fairway (one of them). Thanks for the note Bill; I love them. Let's have more, and you need not be reminded that a county commissioner works really hard, and gets no place except a chance to go higher and work harder, for less. . . . I have a card from **Bob Forbes**, another politician, this time from Knoxville (TVA). I can't give Bob much space as his card said that he would call on me in Exeter this summer, and then the card reneged on it. Bob is the Barbershop Quartet fellow, you all will recall. Bob, I cannot refer you to the exact issue of the Review, but the Pompano address has been published. . . . **Dick Warner** writes that he is retiring, after 27 years with Standard Oil (not 17 as I put it once before). Dick has purchased a home in Falmouth, Mass., on Cape Cod, and will be moving out of Elizabeth, N.J., later this fall. He invites us to call at Falmouth with some vague promises of proper entertainment. Dick has had an interesting hobby, the toast-masters, which, he says, is to be recommended for tongue-tied engineers. He bought himself a 1954 Dodge Truck with which to move his worldly goods from N.J. to Cape Cod. Unfortunately, #2 Main bearing is gone out or something, so Dick has to go to work, or he just won't move. When we get the address of

your new home, Dick, perhaps we will drop in for refreshments. And thanks for the good letter.

We are all saddened to hear that a few more of our classmates have died since we last appeared in print. **Commander Burton Ellis**, a native of Medford, Mass., passed away on December 30, though word came to the Alumni Office late in May. We hear of these items all too late, as one may well see. Burton was in the Navy during both World War II and the Korean War. Afterwards, he was in various shipyards on the West Coast, though the press does not make clear whether he was acting in a civilian role, or in the service. However, he recently received the Navy Meritorious Award for civilians for his work in the industrial Planning of Mobilization Division. He leaves his widow, and a son who is in the U.S. Diplomatic Service. **Dr. Alvin Graves**, who is listed as an Atomic Test Supervisor, passed on in July. Graves was with the Atomic Energy Commission from its inception. His work was of a varied nature, from highly technical work to Geneva conferences, always with this same Commission. A supervisor, incidentally, does just that, when nuclear weapons are tested anywhere. Two others have also passed on, **Emerson Horne**, and **George Menninger**. We have no further information on either of these men, but we offer our sympathy to the survivors.—**Warren J. Henderson**, Secretary, Fort Rock Farm, P.O. Box 14, Exeter, N.H. 03833.

'34

A note from **Charles T. Stewart** advises that his youngest son, William, has been accepted as a freshman at the Institute. . . . **Louis S. Booth** has been appointed head of the Department of Architecture at the University of South Carolina. He is also a member of the Spartanburg City Planning Commission and a director of Lockwood Greene Company. . . . **Samuel A. Groves** has been elected President of the M.I.T. Alumni Association. . . . **Ernest E. Lockhart** has been appointed assistant director of technical research for the Coca Cola Company. He will assume responsibilities in several areas, including the development of resources for technical guidance in the field of nutrition, liaison with food science and related departments in educational institutions and governmental laboratories, and work with appropriate Federal agencies in food technology. Dr. Lockhart was formerly Scientific Director of the Coffee Br wing Institute. Most recently he has been a consultant to the food industry. He completed undergraduate and graduate studies at M.I.T. in 1938 with a Ph.D. in biochemistry.

John T. Burwell, Jr., has been named a member of the Manhattan College Council on Engineering Affairs. Burwell is vice-president for research, American Radiator and Standard Corporation, New York City. The Council, headed by Dr. J. F. Downie Smith, president of Carrier Research and Development Corp., is composed of more than 30 leaders in indus-

try and research who meet regularly with faculty members to keep the College's programs in engineering and nuclear studies abreast of the constantly changing requirements in engineering education. Burwell, who holds B.S. and Ph.D. degrees from M.I.T., has been associated with American Radiator and Standard Sanitary since 1956. Burwell and his wife, the former Katherine Despard, are parents of three children: John T. Burwell III, Leslie and George.

Gordon Way has been appointed Vice-president of Hanna Mining Company. Gordon joined the company January 1 as Assistant Vice-president-Engineering. Since 1946 Gordon had been associated with the Bechtel Corporation, San Francisco, engineers and contractors, who specialize in the design, engineering and construction of steam and nuclear power plants and metallurgical projects. . . . A newly-elected member of the Executive Committee of the American Supply and Machinery Manufacturers' Association, Inc., is **Mr. W. L. Wise, Jr.**, President of The Henry G. Thompson & Son Company, New Haven, Connecticut. He is also a director of the Quinnipiac Council, Boy Scouts of America, member of the Board of Governors, Manufacturers Division, New Haven Chamber of Commerce, and is President of the Hack and Band Saw Association of America. He is a member of the Kiwanis Club, New Haven Country Club, Quinnipiac Club, and Milford Yacht Club. . . . Look Magazine for June 29 carried a most interesting article describing a "New Kind of a Doctor" and a unique clinic operated by three dedicated medical men, one of whom was our classmate, **Dr. Ralph O. Brown**. Incidentally, his son is a sophomore at M.I.T. . . . We have word of the death of **Charles Matilage**, Course IV, **Roger S. Brigham**, Course X, and **Irving R. Geltman**. For the past 19 years Geltman was director of the Commonwealth Clinical Laboratories, Boston. During World II he served as a captain in the Army Medical Corps.

Mal Stevens is now assistant to the President of Brown University. . . . **George Patch's** son David is a first classman at the U.S. Naval Academy. . . . **Ben Shapiro** suffered a heart attack recently but attended Alumni day in a wheel chair accompanied by his wife Bea and daughter Marjorie. . . . **Walt Wrigley** was the commentator during the color film showing of Major White's walk in space. . . . **Phil** and **Dorothy Walker** attended Alumni day. Dot, who is not a native of Webster, Mass., astounded everyone by glibly pronouncing *Lake Chargoggagoggmanchaugagoggchaubunagungamogg*. She said she could spell it, too. The word means, "You fish your side of the lake and I'll fish mine." I hope my informant looked up the spelling! If it's wrong Dot can correct it.

Those attending Alumni Day were: Jim and Mary Burke, Ralph and Ann Brown, Walt and Dot Wrigley, Len and Ben Shapiro, Phil and Dot Walker, Carl and Muriel Wilson, Sam and Mrs. Groves, Henry Morss, Cy Malkin, Al Talbot, Jean Raymond, Don Adler, Peter

Kalustian, R. S. Miller.—**Charles M. Parker**, Secretary, 3 William St., Norwalk, Conn.; **W. Olmstead Wright**, 1003 Howard St., Wheaton, Ill.; **Kendrick Lippitt**, 3782 Putter Drive, Chula Vista, Cal.; **Norman Krim**, 15 Fox Lane, Newton Center 59, Mass.

'35

Our 30th reunion at Chatham Bars Inn, June 11-13, was most congenial and interesting. The class dinner and dance on Saturday night were much fun. **Ed Taubman** showed films which he had taken over the years at the Institute and at class reunions; **Ham Dow's** daughter Merry played magnificently several concert numbers on the piano; and later there were many unusual prizes for fanciful categories of achievement. On Sunday there was a clambake which was a gustatory delight, enhanced by a chorus of singing waitresses.

At the class meeting on Sunday morning the following officers were elected: President, **Allan Q. Mowatt**; Vice-president (Boston), **Robert W. Forster**; Vice-president (New York), **Bernard H. Nelson**; Co-secretary, **Hamilton H. Dow**; Co-secretary, **Irving S. Banquer**; Treasurer, **A. Rufus Applegarth, Jr.**; Regional Secretary (Northwest), **John G. Mooring**; Regional Secretary (Midwest), **John H. Colby**; Regional Secretary (Southeast), **Edward Loewenstein**; Regional Secretary (New England), **Arthur C. Marquardt, Jr.** We shall have two more vice-presidents, to be appointed by the President in accordance with the newly amended by-laws. **Leo Beckwith** will serve as Class Agent; **William L. Abramowitz**, Class Estate Secretary; **Phoenix N. Dangel**, Reunion Photographer; **Edward H. Taubman**, Class Historian; **John D. Hossfeld**, Alumni Council Class Representative.

Bob Forster was luncheon committee chairman for the Alumni Day Luncheon and did a superb job. There were 1600 people present, exceeding by 300, the previous largest attendance. The following members of our class attended the luncheon: **William Abramowitz**, **Bissell Alderman**, **A. Rufus Applegarth, Jr.**, **Irving Banquer**, **Leo Beckwith**, **Willard Bixby**, **Hamilton Dow**, **Phoenix Dangel**, **Lars Ekwurzel**, **Robert Forster**, **Bernard Freiberg**, **G. Peter Grant**, **William Klehm**, **Allan Mowatt**, **Edgar Staff**, **Laurence Stone**, **Edward Taubman**, **Nelson Thorp**. Wives who attended were **Mrs. Applegarth**, **Mrs. Dow**, **Mrs. Ekwurzel**, **Mrs. Forster**, **Mrs. Freiberg**, **Mrs. Grant**, **Mrs. Klehm**, **Mrs. Taubman** and **Mrs. Thorp**. **Mrs. Burtis S. Brown**, who is the wife of an adopted member of the class, also sat with us.

The Fifth Annual Class Golf Tournament is getting down to the final matches. It has been a successful season with many of the matches played in person. **Bob Anderson** and **Sid Grazi's** semifinal match ended in a tie and is being replayed as of this writing. The winner will play **Ham Dow** for the championship. In the consolation flight **Dick Bal-**

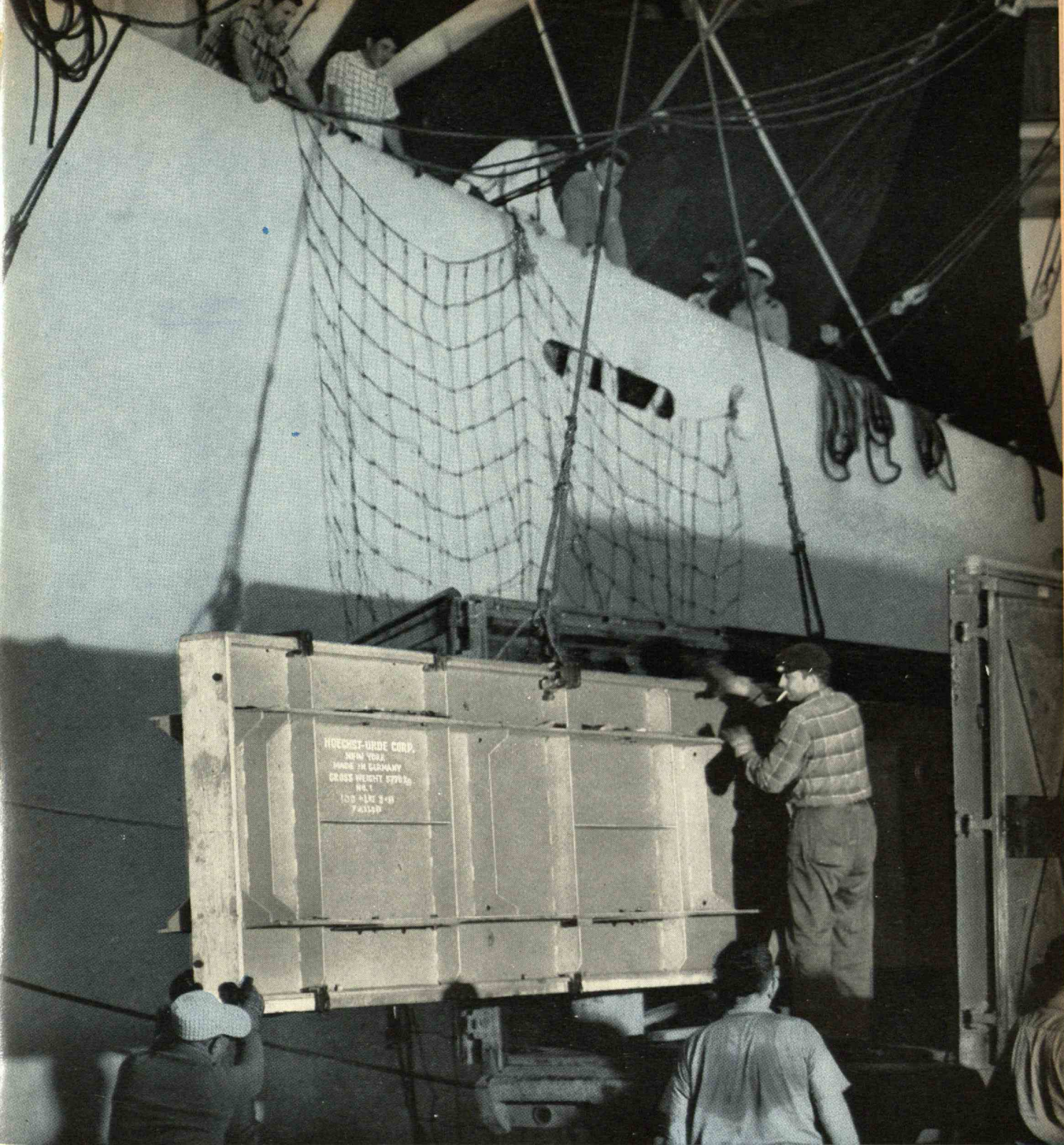
ley, **Paul Daley** and **Al Johnson** will play a single round medal-play at full handicap, and the low net score will be the winner. **Hal Bemis**, **Bill Barker** and **Art Marquardt** were eliminated earlier.

News from here and there: the Sixth Alumni Officers Conference at M.I.T., September 10 and 11, had a good representation registered from the Class of 1935: **Bill Abramowitz**, **Arthur Anderson**, **Appy Applegarth**, **Jack Ballard**, **Leo Beckwith**, **John Brosnahan**, **Jack Colby**, **Carl Floe**, **Art Marquardt**, **Bernie Nelson**, **Allan Mowatt** and **George Valley**. . . . **Leo Beckwith** is on the Alumni Fund Committee of the Long Range Planning Group in the Alumni Association. . . . **Paul Daley** has been joining his family during summer weekends at Holland, Mich. . . . **Les Brooks** attended the Gordon Research Conferences held each year at Colby Junior College in July. . . . **John Tebbetts** has joined the Brooks real estate office in Needham. John has been a resident of Wellesley for 35 years, is married and has two children. . . . **Ed Staff** has been elected president of the M.I.T. Club of Rhode Island. . . . **Hal Everett** couldn't get to reunion because it conflicted with his daughter's graduation. She has been admitted to Newton College, Class of 1969. Hal's older son will be a senior at Canterbury School this year. . . . **Oliver Hoag** entertained the M.I.T. lacrosse team at his home on Long Island last Spring. He and his family were in California at reunion time. . . . **Jack Colby** is back in Wisconsin at 118 Road "O", Nashotah. . . . **Tom Hafer** is back from Italy and now lives at Great Road, Stow, Mass. . . . **Frank Lovering** has moved from Denver to Odessa, Texas, care of Phillips Petroleum Company. . . . **Elmer Roth's** latest address is 15 Sunset Hill Road, Simsbury, Conn. . . . **Otto Zwanzig** has moved across Canada from Vancouver to Quebec at the Price Brothers and Company, Ltd., 65 St. Anne St. . . . **John Mooring** is back in New York City again after 30 years and is with A.T.&T. up from the 7th to the 19th floor.—**Irving S. Banquer**, Co-secretary, 20 Gordon Road, Waban, Mass. 02168; Regional Secretaries: **Arthur C. Marquardt, Jr.**, 178 Mt. Vernon St., Dedham, Mass. 02026; **John H. Colby**, 118 Road "O", Nashotah, Wis. 53058; **Edward Loewenstein**, 444 Cornwallis Drive, Greensboro, N.C. 27408.

'36

Alumni Day attracted at least nine classmates back to the Institute. Since your Secretary was attending her daughter's graduation from Lawrence University, she can only report, via the grapevine, that the following were registered: **Vince Estabrook**, **Bill Garth** with Sally and a daughter, **Hal Miller**, **Frank Parker**, the **George Parkhursts**, **Dick Pattersons**, **Dorian Shainins**, **Harry Fosters** and daughter and the **Ben Coopersteins**. Next year, with our thirtieth reunion coming, should see many more of us on deck. . . .

The Alumni Office reports the death of **Daniel E. Farmer** on February 7, 1965. . . . **Howard Turner** who received his Ph.D. in Chemistry with our class has been president since March 1 of the Turner Construction Company. He has been a director of the company since 1952. . . . An article in the Boston Herald tells of the success of **Robert Leventhal** and his brother, who started the Beacon Construction Company on a shoestring in 1946 and by 1963 had contracts in excess of \$33 million for the year. At present they are involved with One Center Plaza and the Castle Square development projects in Boston as well as other projects in eight states and Puerto Rico. . . . **Louis Wetmore** has taken a leave of absence from the University of Illinois to serve as planning commissioner of the City of Chicago, which he has served as a consultant. . . . **George Bair**, another of our graduate classmates, has been honored by his undergraduate alma mater, the University of Pennsylvania, as a Distinguished Alumnus. He is director of technical staff services at the Corning Glass Company and president-elect (or was in May) of the American Ceramic Society. . . . Two classmates sent along a note with their Alumni Fund contributions: **John Bete** reports from Marion, Mass., that he is "still making fog and spray nozzles at Greenfield" and **Laddie Reday** writes from Newport Beach, Calif., that he is "vice-president Water Treatment Corporation, General Manager, Western Division. Got eliminated (as usual) in tennis tournament, didn't win Newport Ensanada Yacht race. Held my own in both barroom benders though!" It sounds rough. Thanks to you both for setting a good example. . . . I had a telephone chat with **Bob Wead**, who was in Boston for the Alumni Officers' Conference in early September. (This I also missed because I delivered my youngest to Carnegie Tech where she has started as a freshman in the College of Engineering and Science—a chip off the old block, feminine gender?) Bob has changed employers after 22 years in the aerospace industry. He is now self-employed as a management consultant. He says: "Our aerospace industry comprises the nation's largest reservoir of technological capability. It has ample capacity to deal with demands of the space program, a defense program of somewhat greater than present dimensions, and an additional program of applications of technology to the quality of life in our communities. I am applying some pressure on the growth of the additional program; it appears that if left to nature and the efforts of individual contractors it will evolve slowly if at all, and may even be implemented by specialized entities outside the aerospace reservoir." Good luck to you, Bob, in your new venture. His address is 22361 Kittridge Street, Canoga Park, Calif. 91304. . . . Many of our class have indicated that they have changed positions or residences. Here are some: Our president, **Jack Austin** is with the Rheem Manufacturing Company, 7600 South Kedzie Avenue, Chicago 60652. Also in Chicago is **W. Boynton Beckwith** with United Airlines, P.O. Box 8800, O'Hare International Airport,



Uhde 120,000 Ampere Mercury Cell parts arriving at the Port of New York

ANOTHER EXAMPLE of the part Hoechst-Uhde plays in the chemical industry — providing special equipment, fabricated to specifications established by production experience, and with design adapted to local requirements.

Let us apply production experience to your process problems.

PROCESSES : PETROCHEMICAL • FERTILIZER • CHLOR-ALKALI • ORGANIC • INORGANIC

HOECHST-UHDE CORPORATION



777 THIRD AVE., NEW YORK, N.Y. 10017

"TOMORROW'S CHEMISTRY

FOR TODAY'S INDUSTRY"

High-Speed Photography Without A Camera

Exposure: 0.8 microsecond

These remarkable photographs of a bullet passing through a soap bubble were taken by physics students at Andover (Massachusetts) High School. No camera was used — only a General Radio Strobotac® electronic stroboscope, a microphone, an audio amplifier, and a Polaroid 4 x 5 film back. The white-light short-duration flash of the Strobotac held film exposure to 0.8 microsecond, a duration about 1/1000th that possible with conventional electronic flash units.

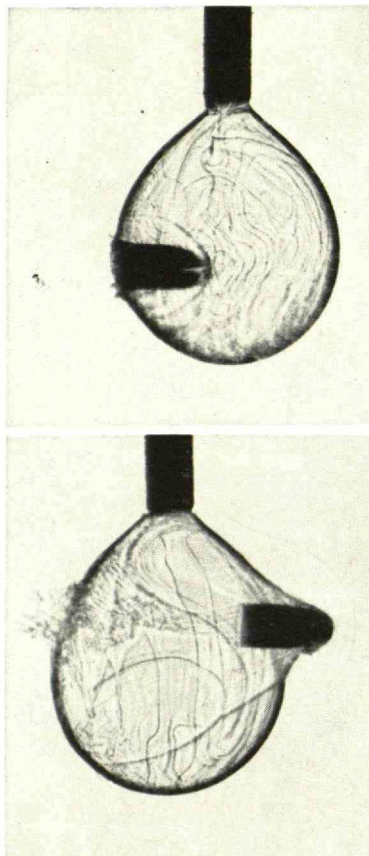
Of course, for greater versatility, you can use a camera with a Strobotac. The short-duration flash of the Strobotac coupled with an average light intensity of 1,000,000 beam-candlepower gives the scientific or industrial photographer high-speed capability with conventional photographic equipment. For complete information on how to use the Strobotac and its accessories for both high-speed and multiple-flash work (110 to 25,000 flashes-per-minute) write for your free copy of

"The Handbook
of High-Speed
Photography".



**Type 1531-A
STROBOTAC®**

Electronic
Stroboscope
\$290 in U.S.A.



Shadowgraphs of a bullet passing through a soap bubble filled with Freon-12. A Strobotac with the reflector removed was used as a point source about three yards from the subject. Instead of a camera, a Polaroid 4 x 5 film back with Polaroid 3000 film was placed 3½ inches from the bubble on the opposite side of the light source. The flash was triggered by means of a microphone. Top photograph shows the bullet entering the bubble and the intensification of the shock wave in the Freon-12. Photograph at bottom shows another bullet leaving a bubble, with strong turbulence in its wake.

Write for Complete Information

GENERAL RADIO COMPANY

WEST CONCORD, MASSACHUSETTS

NEW YORK, N.Y. CHICAGO PHILADELPHIA WASHINGTON, D.C.
SYRACUSE DALLAS SAN FRANCISCO LOS ANGELES ORLANDO, FLA. CLEVELAND
In Canada: TORONTO MONTREAL In Europe: LONDON ZURICH



*General Radio
manufactures
a complete line of
instruments for
science and industry*

Admittance Meter
Amplifiers
Attenuators (Audio & Coaxial)
Binding Posts
Bridges
Coaxial Connectors & Elements
Coherent Decade Frequency Synthesizers
Data Printer
Decade Boxes & Voltage Dividers
Dials & Knobs
Digital Counters
Digital-To-Analog Converters
Discriminator
Distortion & Noise Meters
Electrometer
Electronic Voltmeters
Filters
Frequency Standards
Frequency Meter & Discriminator
Graphic Level Recorder
Megohmmeters
Motor Speed Controls
Null Detectors
Oscillators
Output Power Meters
Plugs & Jacks
Potentiometers
Power Supplies
Pulse Generators
Random-Noise Generator
Slotted Lines
Sound-Level Meters & Analyzers
Standards, Resistance-Inductance-Capacitance
Standard-Signal Generators
Standard Sweep-Frequency Generator
Stroboscopes
Sweep Drives
Time-Delay Generator
Tone-Burst Generator
Variac® Autotransformers
Vibration Meter & Analyzer
Voltage Regulators
Wave Analyzer

Write for our catalog.

